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PAPER TRADE JOURNAL

VOL. 123, NO. 11 SEPTEMBER 12, 1946

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Midwest Market Finds Demand Runs Ahead of Profits
TAPPI Plans Programs for Three Fall Meetings
Wisconsin Charts Rise in Payroll Earnings
Chicago Outing to Benefit the Institute

CPA Approves Riegel's Proposed $6 Million Plant
OPA Loosens Line on Waste Dealers' Costs
Glatfelter Wins Legion's Commendation
Superintendents to Meet at Appleton

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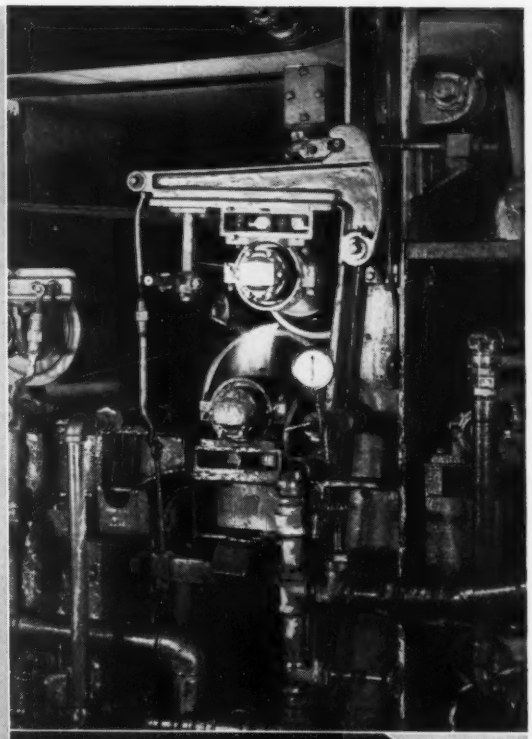

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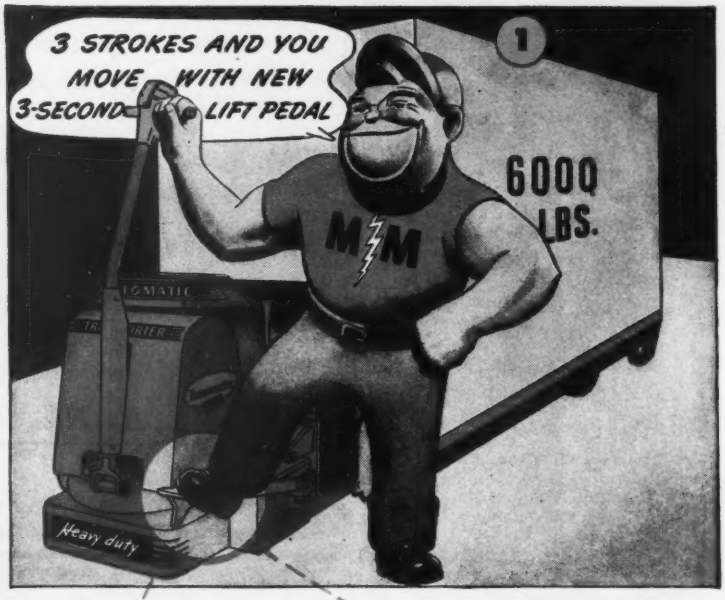

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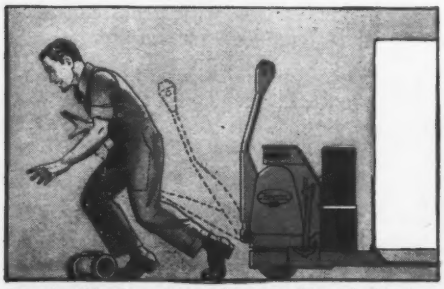

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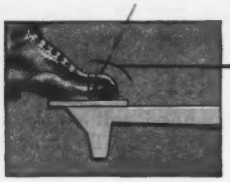
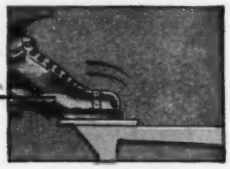


1 STROKE CONTACTS SKID

2 MORE STROKES LIFT LOAD



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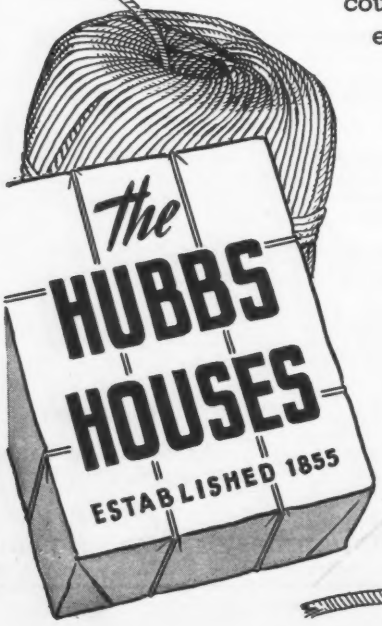

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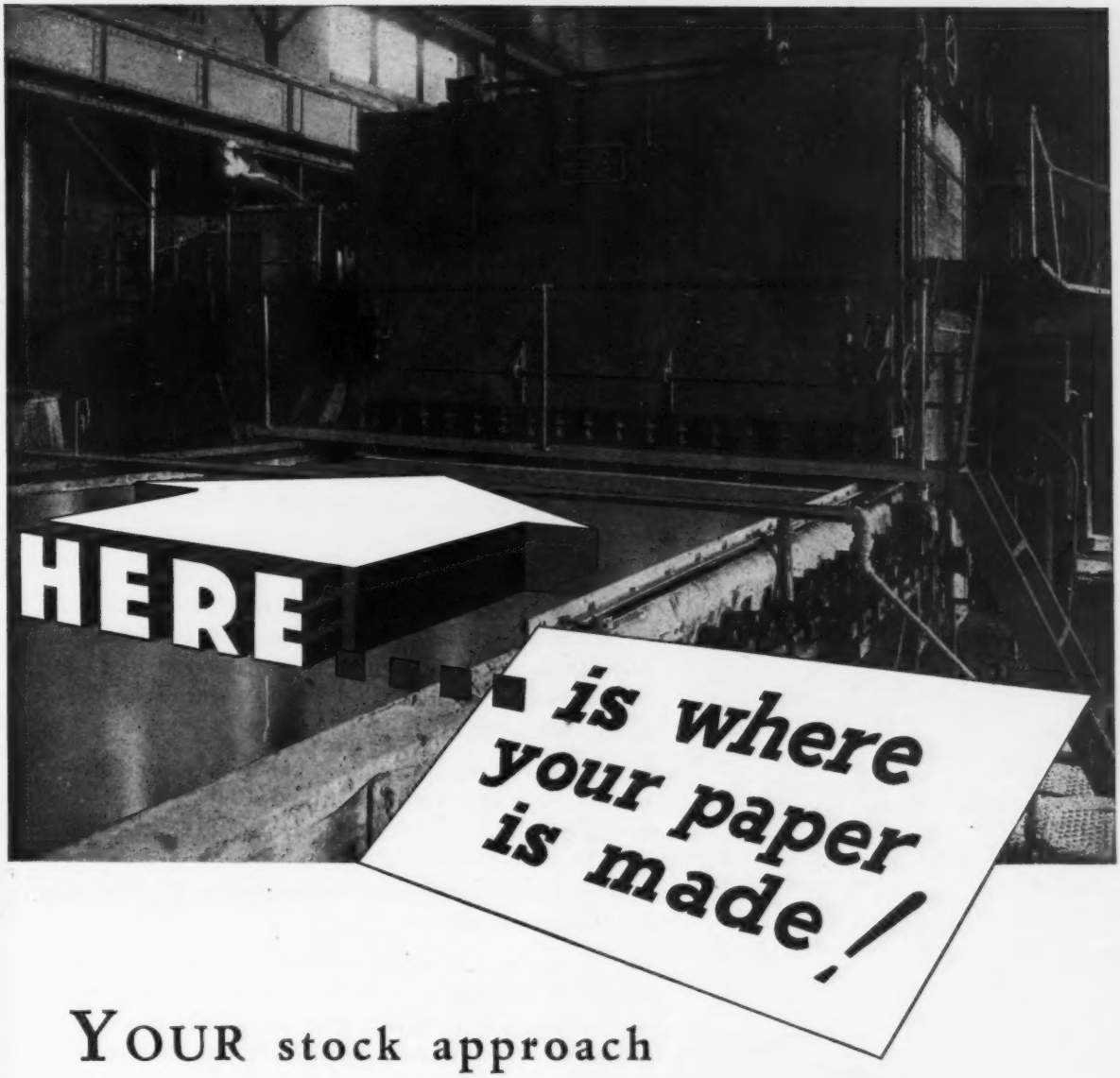

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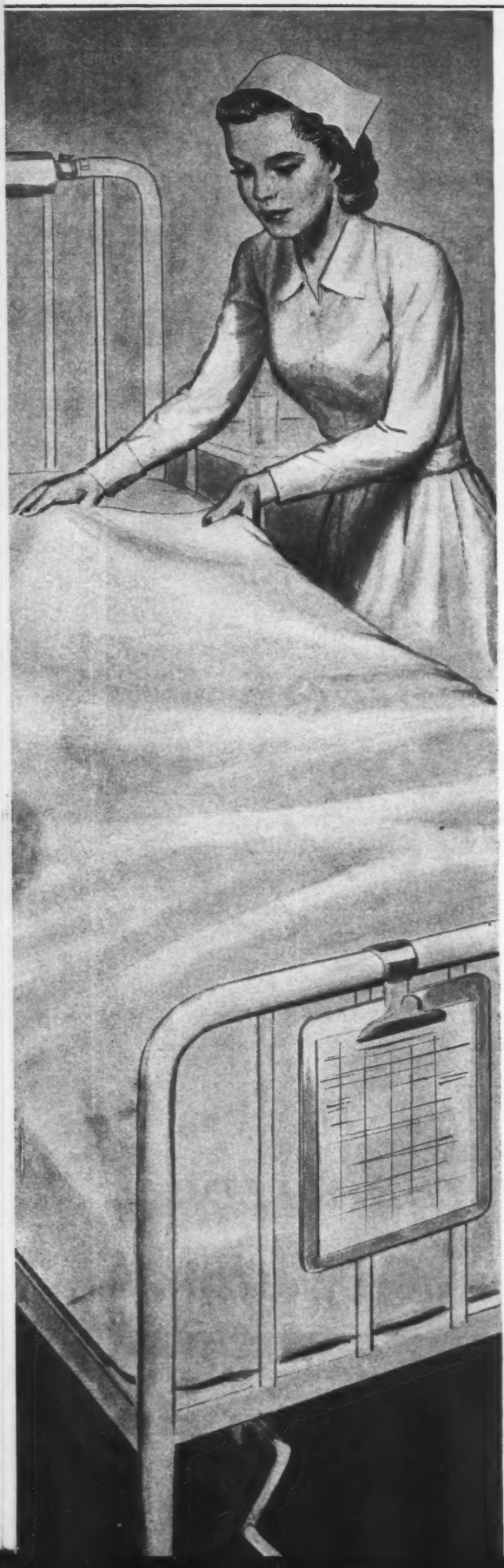

PAPER SHEETS AND PILLOW CASES

(NEWS ITEM: *Paper may soon replace cloth in the manufacture of sheets and pillow cases.*)

A new paper that can be laundered like cloth, even boiled in soapy water, and then ironed flat is in the offing for sheets and pillow cases in the home of tomorrow. Softness, whiteness and unusual tearing strength are some of the properties of this new paper. It was used during the war principally for military maps.

This new development in papermaking is fully described in an article, entitled "Notes on Resin-Bonded, Wet-Strength Papers", which is available for the asking from Bureau of Standards, U. S. Department of Commerce, Washington 25, D. C.

Paper cord for rug-backing . . . paper bags for garbage disposal . . . paper cans for frozen foods . . . new uses for paper calling for new standards of lightness and toughness, new standards of quality in performance. New responsibilities—new opportunities for the Pulp and Paper Industry.

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PAPER TRADE JOURNAL
Vol. 123, No. 11 September 12, 1946
Title Reg. U. S. Pat. Off.

Ontario Commission to Conduct Hearings

TORONTO — Ontario Royal Commission on Forestry has announced a series of hearings to gather information on forestry conditions and problems before instituting a forestry program for conservation and utilization. In pre-election promises Premier George Drew promised a thorough-going policy to make the most of the province's forestry resources in the interests of the people. Major General Howard Kennedy was appointed some time ago "to investigate, inquire into and report upon the forest resources of Ontario and their conservation, management and beneficial utilization for all purposes, including their relation to other basic industries, particularly farming, and their relation to recreation, soil conservation, and waterways and water powers."

Notice is now given that after having completed field investigations with his staff, the commissioner proposes to hold public hearings at Sault Ste. Marie, Oct. 28-29; Port Arthur, Nov. 1-2; Kenora, Nov. 5-6; Fort Frances, Nov. 8-9; Geraldton, Nov. 12-13; London, Nov. 18-19; Cochrane, Nov. 25-26; North Bay, Nov. 28-29; Pembroke, Dec. 2-3; Ottawa, Dec. 5-6-7; Toronto, Dec. 9-10-11. All persons, associations or groups desiring to make representations are invited to do so.

While the presentation of oral evidence under oath is permissible, it is urged that submissions take the form of written briefs. Briefs should be addressed to The Secretary, Ontario Royal Commission on Forestry, Administration Building, Long Branch Small Arms Plant, Toronto 14, to reach the Commission at least one month before the hearing at which consideration is desired.

Production Ratio Remains Well Above 100 Per Cent

NEW YORK — The ratio of United States paper production to mill capacity for the week ending August 31, 1946, as reported by the American Paper and Pulp Association, was 105.6 percent compared with 106.1 percent for the preceding week and 95.2 percent for the corresponding week a year ago.

Paperboard production was 100 percent for the current week compared with 100 percent for the preceding week, and 97 percent for the corresponding week a year ago.

Midwest Market Finds Demand Running Ahead of Profits

Riegel's $6 Million Plant Wins CPA Approval

WILMINGTON, N. C.—Application of the Riegel Paper Corporation for permission to construct a $6,000,000 paper mill near Acme, 18 miles from Wilmington, has been approved by the Civilian Production Administration in Washington, it is learned. A Washington source was quoted as saying the Riegel concern won the building priority because of the critical shortage of paper products. The company will produce paper products used in the manufacture of paper boarding and other commodities.

Currently, it is reported, Riegel Paper Corporation has 140,000 acres of timberland under lease in Brunswick, Pender and Columbus counties. Part of the land now is being used for grazing purposes. It is understood that the new plant to be erected near Acme will employ more than 500 persons, with work on the building to get underway early next year.

Wholesale Volume Up Twenty-five Per Cent

WASHINGTON—Wholesalers' sales of paper and paper products for the first seven months of this year totaled $58,480,000, a gain of 25 percent over the corresponding months of 1945, according to the Bureau of Census, based on figures of a group of reporting firms. Sales by this group totaled $7,950,000 in July, three percent under June, but 39 percent above those for July last year. Inventories of a reporting group were four percent less in July than in June, but 25 percent above those for July a year ago.

Stone Acquires Two Ohio Plants

FRANKLIN, Ohio — The Stone Contaner Corporation has recently purchased the assets of the Franklin Board & Paper Company after having bought the assets of the Coshocton Straw Paper Company of Coshocton, Ohio, the month previously. It is understood that both acquisitions will be operated as divisions of the Stone Container Corporation.

CHICAGO — Still plagued by grave shortages of pulp, manpower and chemicals, including chlorine, the Chicago paper trade went into its first week of the fall quarter with business definitely "too good" as far as demand was concerned. Whether the market was "good" or not from the money making viewpoint was reported, frankly, to be determined by the effect adjustments OPA was making on individual applications and the comparison of these adjustments to former prices and operating costs. Some mill representatives reported their companies in good shape, others were being squeezed to the point of where the word "profitless prosperity" was far more than a joke.

All grades of paper were in heavy demand, with special accent on building papers and on the so-called "government" lines of mimeos and seconds. Books and covers remained strong with all prices at top ceilings while bonds and ledgers showed increases in demand along with the advent of the fall season. Here and there, as in the wrapping paper industry, warnings were being flashed to retail users — particularly the larger stores — to go slowly on gift and wrapping requirements as well as gift boxes.

Wastepaper dealers reported a fairly good accumulation of waste papers with prices holding quite firm at ceiling levels. Mill inventories were said to be comparatively adequate and consumption was holding at a steady rate. The waste rag market was reported unchanged as was the second hand bag market. A shortage of coffee bags was reported locally.

A number of Chicago paper trade leaders, including Robert S. Knox, president of the Chicago Paper Association, this week publicly warned readers of some of Chicago's large metropolitan newspapers that despite the largest production of paper in history the United States may have to put up with shortages of cleansing tissues, toilet paper, wrapping paper, stationery and other forms for some time to come. Shortages were attributed to increased per capita consumption, OPA restrictions making some lines more profitable to make than others and creating shortages in others, export difficulties,

(Continued on page 18)

Wisconsin Charts Rise In Earnings

MADISON—A constant rise in average weekly earnings in the paper and allied products industries from 1940 to 1945, inclusively, is shown in a report issued last week by the Industrial Commission of Wisconsin. A corresponding rise in the number of hours worked also is shown, with exception of 1942 when there was a slight decline compared with the previous year. The hourly rate also is progressively higher each year, without exception.

Average weekly earnings were as follows: 1940 — $26.12; 1941 — $29.29; 1942 — $32.64; 1943 — $36.09; 1944 — $39.32; 1945 — $41.37.

Average hours worked per week: 1940 — 40.7; 1941 — 42.7; 1942 — 42.3; 1943—44.1; 1944—47.7; 1945—48 4.

Average hourly earnings: 1940—64.2 cents; 1941 — 68.5 cents; 1942 — 77.3 cents; 1943 — 81.8 cents; 1944 — 82.4 cents; 1945—85.5 cents.

In its regular monthly report, issued simultaneously, the commission reported an increase in the number of employes in paper and paper products industries in Wisconsin, but noted a slight decline in the estimated total payrolls, compared with June. There were 26,500 employes in July and 26,300 in June, the variation being 0.7%. July payrolls were estimated at $1,102,000 while those for June were $1,105,000, or a variation of 0.2%. At an average hourly rate of 97.8 cents, weekly earnings averaged $41.60. The average work week was 42.5 hours.

Twenty-two paper and allied products firms in the metropolitan area of Milwaukee reported a total of 2,405 employes, an increase of 1.2% over June. Weekly payrolls amounted to $102,098, or an increase of 2.4%. Average weekly earnings were $42.45 for 44.0 hours, at 96.6 cents per hour.

Owens-Illinois Buys in Prairie State Mills

JOLIET, Ill. — The Owens-Illinois Glass Company has recently bought a large interest in the Prairie State Paper Mills of this city. H. J. Finder, president and general manager of the Prairie State organization, will, it is reported, continue in that same capacity under the new arrangement.

Investigators Seek Cause Of Woodland Mill Explosion

HARTFORD, Conn.—Cause of the explosion of a boiler at the Case Brothers Inc., No. 2 Mill, East Hartford, has been reduced to two possibilities.

Chief J. J. Armstrong of the East Hartford Fire Department said investigators, who are still working on the case, believe the boiler exploded either because it was defective or that a steam pressure release valve was not operating properly.

Neither the paper concern nor the East Hartford Fire Department had yet determined the amount of the damage. The mill is commonly known as the Woodland Paper Mill.

The top of a boiler was blown through the roof of the building and fell through another part of the roof.

Lawless Brothers Buy Tonawanda Box

EAST ROCHESTER, N. Y. — Lawless Brothers Paper Mills, Inc., has purchased the Tonawanda Corrugated Box Company, Inc. of North Tonawanda. The corporation officers are Michael J. Lawless, president, David F. Lawless, treasurer and Matthew D. Lawless, secretary. The company has a wholly owned subsidiary operating under the name of Paper Mill Supply Company in Rochester, and a warehouse in Scottsville.

David F. Lawless, Jr. and Vincent M. Lawless will be in charge of operations at North Tonawanda. Both recently returned from military service. David F. Lawless, Jr. was a captain in the Marine Corps and Vincent M. Lawless an Army Engineer. The grandfather of these boys was a manufacturer of paper for a great many years in Penfield, New York.

The old Tonawanda concern has been in business for a great many years and has established a trade in the Niagara Frontier and Buffalo. Lawless Brothers have been furnishing them with liner board and this program will continue under the new setup.

Shattuck Gives $100,000 To Carroll College

NEENAH, Wis.—F. S. Shattuck, retired vice-president of Kimberly-Clark Corporation, has made a gift of $100,000 to Carroll College, Waukesha, Wis., with the proviso that it be matched by the college. Mr. Shattuck is president of the Carroll College Board of Trustees.

Dr. Nelson V. Russell, Carroll's president, announced last week that the college has received more than $200,000 in gifts, including the one from Mr. Shattuck. The money will be used for enlargement of the science department at the school. The plan includes "modernization and making over the present science hall into an up-to-date science building and the furnishings of such other additions and equipment as will make the science equipment of Carroll suitable and satisfactory for the requirements of the college and enable it to serve the interests of industry in the community and southern Wisconsin."

Kavanaugh in Chicago

CHICAGO—Local offices of the West Virgina Pulp and Paper Company at 35 East Wacker Drve are now in charge of W. R. Kavanagh who has been transferred to Chicago expressly for this purpose.

Tells of Thilmany Visual Program

KAUKAUNA, Wis.—A talk and demonstration were given September 4 before the Kaukauna Rotary Club by Mrs. Hazel Leedke, industrial nurse at the Thilmany Pulp and Paper Company, who discussed the company's industrial visual program.

The Thilmany mill was the first paper mill in the country to install this program, using the orthorator machine. Mrs. Leedke has used it to test the eyes of all who are employed at the mill. It is not a medical test, but rather an applicable check on persons working in different phases of production.

The mill works with Purdue University, Lafayette, Indiana, is conducting these tests, according to Mrs. Leedke. In setting up the program, the eyes of the workers in each department were checked, and those rating the highest were found to be most efficient, most skilled and least subject to accidents. Working on this basis, a chart was set up and areas were plotted, showing the satisfactory, the acceptable, and the not desirable. Different charts were drawn up for each specific job, including clerical work, truck driving, crane driving, rewinders, paper machine operators and the rest.

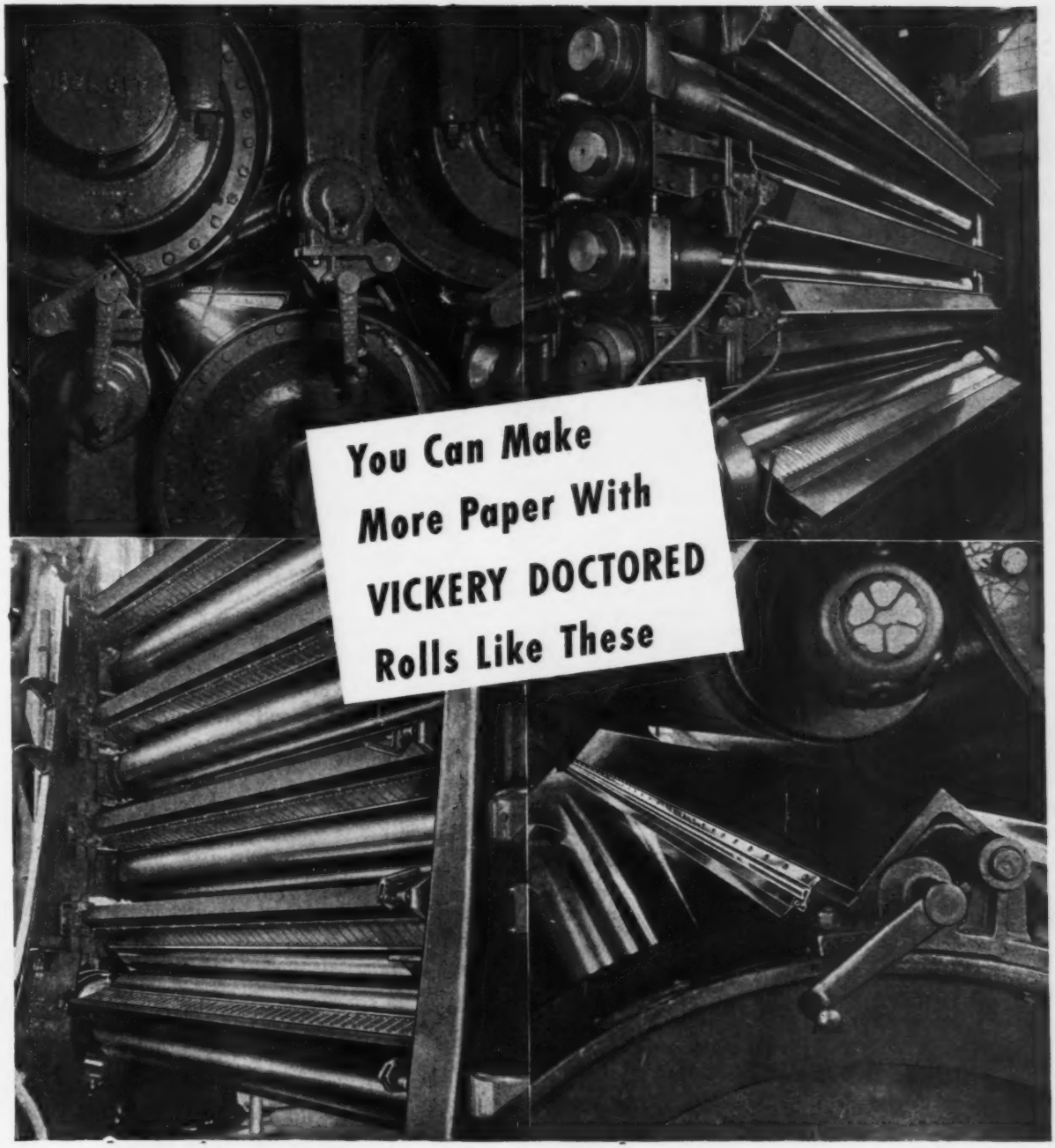
Standards have been set up for each job. There is a maximum standard which Mrs. Leedke described as a standard enabling a worker to take over any job in the plant from the visual capabilities he possesses. Minimum standards for a certain position means that if a person can only reach these standards in visual acuteness, he stays at that position until his eyes are improved or he is able to raise his visual status in some other way. The results of the test are given to the personnel department and assist in placing employes. A correlation between the jog and the visual analysis has resulted.

The orthorater gives a battery of 12 tests, Mrs. Leedke explained. These are for near and far sight, muscle balance, color discrimination and depth perception. She said that the machine is absolutely controlled.

After her talk, Mrs. Leedke gave the test to a number of Rotarians.

Putnam Joins Package Machinery

SPRINGFIELD, Mass. — Roe S. Clark, vice-president and treasurer of Package Machinery Company, announced the appointment of Haldimand S. Putnam, Jr., as assistant treasurer of the company. A native of Springfield, Putnam was graduated from the Technical High School and from Syracuse University. He has been a member of the staff of Scovell, Wellington & Company, public accountants, since 1929. As an accountant, he has served many local companies including Package Machinery Company.



When your papermaking rolls are constantly clean and shining you have fewer breaks and you can run them continuously at top speed.

Vickery Doctors are engineered to keep each and every roll in shape to do its best work.

VICKERY DOCTORS

Superintendents To Meet At Appleton

APPLETON, Wis. — The Northwest division of the American Pulp and Paper Mill Superintendents Association will meet September 20 and 21 in Appleton, according to L. J. Smith, Combined Locks, association chairman.

Registration will open Thursday evening, September 19, and continue the next morning. A business session will be held Friday morning, September 20, when new officers will be elected. The superintendents will lunch Friday noon and then play golf at the North Shore Golf Club, and a stag will be held in the evening at the Conway hotel. A bridge tournament is being arranged for the ladies in the afternoon at the Conway.

A number of speakers are scheduled to talk on chain barkers, beater finish and stock refining at the Saturday morning sessions. There will be a luncheon at the hotel for both men and women Saturday noon, September 21. Mill visits are being arranged for Saturday afternoon. A banquet and dance will be held at the Conway Saturday evening.

Mr. Smith is chairman; R. A. Nugent, Nekoosa-Edwards Paper Company, Port Edwards, first vice chairman; Sig Echman, Rhinelander Paper Company, Rhinelander, Wis., second vice chairman, and Frank Kreiling, Thilmany Pulp and Paper Company, Kaukauna, secretary and treasurer.

Whiting-Perkins Families United By Marriage

HOLYOKE, Mass. — Miss Polly Perkins, daughter of Mr. and Mrs. Benjamin Perkins, and William Whiting, Jr., son of Mr. and Mrs. William Whiting, connected for several generations with Holyoke's leading paper industries, were married here Saturday at Skinner Memorial Chapel.

The bride is the granddaughter of the late J. Lewis Perkins, prominent Holyoke paper industrialist, and great-granddaughter of the late Benjamin F. Perkins, founder of the American Tissue Mills and of the B. F. Perkins Company. Mr. Whiting is a grandson of the late Secretary of Commerce William F. Whiting, and great-grandson of the late Congressman Whiting, founder of the Whiting Paper Company. His father is currently president of Whiting.

Glatfelter Receives Legion Commendation

PHILADELPHIA—The P. H. Glatfelter Company has been signally honored with the presentation of a certificate of honor because with a normal roster of five hundred and fifty employes, two hundred and ten veterans are now employed. The presentation was made by Commander Jerry G. Allen, 22nd District Commander of the American Legion, who said that this was the best record of veteran employment in Pennsylvania.

The occasion was an ox-roast welcoming home all the returned veterans of Spring Grove and vicinity.

The local post of the Veterans of Foreign Wars, named in honor and memory of Pvt. Allen J. Beck, Jr., a Glatfelter employe and son of Allen J. Beck, foreman in the finishing department, presented to Mr. and Mrs. George W. Welsh, Jr., a papermaker for forty-five years, a scroll of honor in recognition of their having four sons and one daughter in the armed forces.

Foresters Meet at Saratoga Springs

SARATOGA SPRINGS, N. Y. — The Society of American Foresters gathered here last week for a banquet at the Worden Hotel, to discuss the various problems of professional foresters. The principal speaker was George W. Brooks, director of research and education for the International Brotherhood of Pulp, Sulphite & Paper Mill Workers, who discussed "Labor and Labor Relations as they affect the Paper Industry." Planned visits of the foresters to inspect paper mills at Corinth and Mechanicville were carried out by the program committee. The group also made a trip to the Thomas Luther tract where forest plantation thinning by mechanical methods was demonstrated.

Fiber Supply Controls Eagle A Operations

HOLYOKE, Mass.—Any change from a six to a five-day schedule of the American Writing Paper Corp. depends upon the fiber situation, Vice-president Edward C. Reid said last week. While two mills have been working on a six-day-a-week schedule the balance have been on five.

The fiber situation is unsettled but may improve itself within a month or more, Reid said, but emphasized the fact this was merely an opinion. "If the fiber situation improves we will return to a full six-day schedule in all of the mills," Reid added.

As to the general offices going on a five-day schedule, Reid said no official decision has been reached. A meeting is scheduled during the coming week when the decision, one way or the other, will be announced.

CPA Approves Champion Addition

GREENSBORO, N. C.—Chester O. Ensign, State director of the Civilian Production Administration, has announced that plans of the Champion Paper and Fibre Company, Canton, for a $90,000 construction program, have been approved.

Chicago Outing to Benefit Institute

CHICAGO—The Chicago Paper Association is receiving plenty of congratulations for its decision to turn all proceeds of its annual golf outing over to the scholarship fund of the Institute of Paper Chemistry. In former years, the proceeds of these successful outings have been donated to servicemen's organizations but this year, with the war over, the Association centered its attention on the Institute for the excellent work it is doing.

The outing will be held at the Elmhurst Country Club on September 17 and the program being arranged by Robert E. Knox, president, and the golf committee, bids fair to even excell past superior performances. The Association has long been noted for the splendid prizes that are awarded and these, plus the fellowship and the delightful informality of the dinner meeting when prizes are awarded and a few "veterans" take a bow, insure a large crowd. The added impetus provided by the fact that the Institute will benefit, means, according to the officers of the rapidly growing coarse paper association, a real record for next year's outing committee to try to top.

Keith Paper Celebrates Diamond Jubilee

TURNERS FALLS, Mass.—On the eve of its diamond jubilee, which will be marked this month, the Keith Paper Company is looking forward to at least another 75 years of fine paper making.

Productivity of the Keith company did not suffer from the war, for this concern, which had always done some work for the government printing office and the treasury department, threw itself wholeheartedly into war work.

It produced tons of map and chart paper which was shipped to countries all over the world. It made more invasion money than any other single mill. At one time, five express carloads of it were sent by Keith to the west coast.

Brotherhood Votes No On Eagle Lodge Merger

HOLYOKE, Mass. — Local 226 of the International Brotherhood of Papermakers last week voted unanimously against a proposed merger with Eagle Lodge of Papermakers. A joint committee of the two unions has been studying the merger, which would give Holyoke the largest union in the international brotherhood.

Kellett Addresses Supervisors

NEENAH, Wis.—W. R. Kellett, general superintendent and vice-president of Kimberly-Clark Corporation, spoke at the dinner meeting Friday evening, September 6, of the Lakeview Mill Supervisors' Club. About 60 members attended.

GRINNELL
PIPING PROGRESS
SUPERSEAL
PAT'D
New Possibilities for Steel Tubing
Question: What recent development has made possible greatly expanded use of light wall steel tubing?
Answer: A new flared tube fitting which requires only a 10 degree tubing flare.
No longer is the difficulty of making a satisfactory joint with light wall steel tubing a serious hindrance to its widespread use. The Grinnell Superseal Flared Tube Fitting eliminates this obstacle by requiring a tubing flare of only 10 degrees. Tubing can be flared in a single operation. There is no weak point. Joints are leakproof under maximum vibration and pressure. Fitting can be connected and disconnected repeatedly without injury to the tubing.
WHENEVER PIPING IS INVOLVED

Here is another typical Grinnell development in piping – an improved tube fitting which makes possible the use of less costly steel tubing and reduces production flaring and assembly costs.

The Superseal Fitting is another product of Grinnell's specialized piping knowledge, continuous laboratory research and experimentation. It is further proof of the ability of this company to supply everything for piping – from a tiny tube fitting to a complete power or process piping installation.

GRINNELL COMPANY, INC.
Executive Offices: Providence 1, R. I.
Branch warehouses in principal cities.

Manufacturing Plants:
Providence, R. I.; Cranston, R. I.; Atlanta, Ga.; Warren, Ohio; Columbia, Pa.

GRINNELL

WHENEVER PIPING IS INVOLVED

Imperial Prepares New Wallpaper Line

GLENS FALLS, N. Y. — The annual meeting of the Imperial Paper & Color Corporation was held here last week. William B. Plate, of Detroit, was elected to the newly created post of controller. He also succeeds the late Daniel H. Cowles as a director.

The new controller will assume his duties immediately after having been associated with the Firestone Tire and Rubber Co. for several years. Albert S. Frazier was re-elected secretary and also chosen treasurer to succeed the late James H. Pearsall. Alfred E. Van Wirt succeeds Mr. Pearsall as a director.

Other officers chosen include Karl R. McBride, president; Martin L. C. Wilmarth, vice-president; Harry J. Hall and George U. Shaefer, assistant secretaries; J. J. Clarke and A. M. Spear, assistant treasurers. Messrs. Shaefer and Spear are newly elected officials. Elected as directors are Louis P. Brown, Arthur F. Brown, Albert L. Emerson, Albert S. Frazier, J. Edward Singleton, Martin L. C. Wilmarth, George S. Knapp, George F. Mellen and Karl R. McBride.

The annual report submitted at the meeting stated that the unprecedented peacetime demand for products is evidenced by the maintenance of sales volume without war business. The raising of restrictions on production of wallpaper has enabled the firm to make definite improvements in that division and a new line is expected to be on the market this fall. The Color and Chemical Divisions have also benefited by the lifting of the war era restrictions although the scarcity of many raw materials threatens to impede increased production in these divisions. Scarcity of building materials, as well as raw materials, is delaying the considerable expansion planned which will not only allow increased production facilities but will at the same time bring about many economies in operation. The contemplated program calls for an expenditure of at least $1,125,000.

The report also announces that the research department has developed and is experimenting on many new products that will have ready markets. The large scale production of these products must wait for increased plant facilities. The firm has completed final clearance and settlement of war contracts with respect to all claims and reconversion of certain parts of the plant to peacetime operations has been completed as far as possible. During the war there were 524 employes on leave in the armed forces and since the termination a substantial number have returned to the company.

A financial report was presented showing the net sales for 1946 amounted to $11,337,449.04 in comparison to the 1945 figures of $10,701,969.02. Net profit for 1946 is $885,818.74 in comparison to the 1945 mark of $510,713.21.

Donnacona Doubles Its Dividend Payment

TORONTO—An indication of the improvement in earning power for the current year of Canadian paper companies, under higher prices for their products, and increased operating ratios, is the declaration of Donnacona Paper Company of a dividend of 50 cents a share on its common stock, payable November 1 next. The previous dividend was 25 cents, which was paid April 1 last. In 1945 dividends were paid semi-annually, with a similar dividend paid September 1, 1944. Action by directors over the three years is taken as suggesting the stock is on a regular dividend basis. It is understood that earnings this year will be substantially higher than in 1945, when 77 cents was shown on the common. Operations today, as for some months past, have been practically at capacity, with larger supplies available of pulpwood. This situation applies not only to newsprint production, but to the company's unbleached sulphite pulp, and to its insulating board.

Package Stockholders Approve Financing Plan

SPRINGFIELD, Mass. — Package Machinery Co. stockholders recently ratified, approved and confirmed a three point, $2,250,000 program of the board of directors financing the purchase of the Pratt and Whitney plant in East Longmeadow.

Included in the costs to be financed are moving, rearrangement of facilities, and purchase of additional equipment for expansion.

The finance plans calls for $1,750,000 for cash payment to the War Assets Administration for the East Longmeadow factory, $250,000 for rearrangements of its facilities to meet the Package Machinery needs and moving of equipment, and $250,000 for purchase of new equipment, a total of $2,250,000.

Signing of the big check, the largest on record for a private industry transaction in Springfield, is expected to take place late this month when WAA officials will be present to complete the deal.

Corrugated Box Earnings Ahead

TORONTO—Operations of Corrugated Paper Box Company, Ltd., for the eight months ending August 31 will be ahead of the similar period of 1945 and the present backlog of orders indicates that sales for the year 1946 will register an encouraging increase over the previous year, it is reported.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending September 7, 1946

STOCKS

	High	Low	Last
A. P. W.	6⅝	6	6
Armstrong Cork Co.	53½	48¼	48¼
Celotex Corp.	29	23	26⅛
Celotex Corp., pf.	21	17	20¾
Certain-Teed Products Corp.	19¾	17½	18¾
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	53¼	45½	48¾
Champion Paper & Fibre Co., pf.	111	111	111
Congoleum Nairn Co.	32¼	29⅝	29¾
Container Corp. of America	42½	37¼	40
Continental-Diamond Fibre Co.	11⅞	9½	10½
Crown-Zellerbach Co.	32½	27⅜	29
Crown-Zellerbach Co., pf.	121	117	117
Dixie Cup Co.	42	37	37
Dixie Cup Co.—A	53½	49¾	52
Flintkote Co.	35	30⅝	33⅛
Flintkote Co., pf.	112¾	112¾	112¾
Robert Gair	9½	7⅞	8⅜
Robert Gair, pf.	20⅜	19¾	20
International Paper Co.	47⅜	42¼	45
International Paper Co., pf.	120¼	114½	117½
Johns-Manville Corp.	130	123	126
Johns-Manville Corp., pf.	120¼	120¼	120¼
Kimberly-Clark Corp.	28½	25¼	28½
Mac Andrews & Forbes	39	37	37
Mac Andrews & Forbes, pf.	....	....	....
Masonite Corp.	61	53	55¾
Mead Corp.	23¾	19	21¼
Mead Corp., pf. 4¼	106	105½	105½
Mead Corp., pf. 2	53¼	48¼	49¼
National Container Corp.	31½	27½	28¼
Paraffine Companies, Inc.	68	68	68
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	23⅞	19½	21½
Rayonier, Inc., pf.	37½	37	37¼
Ruberoid Co.	51	46½	47¾
Scott Paper Co.	56	52¾	53½
Scott Paper Co., pf.	109	106¾	107¼
Sutherland Paper Co.	44	39⅛	42
Union Bag & Paper Corp.	34¼	28½	29½
United Paperboard Co.	12¼	11½	11¾
U. S. Gypsum Co.	115	105½	112
U. S. Gypsum Co., pf.	202	202	202
West Virginia Pulp & Paper Co.	43½	37	43½
West Virginia Pulp & Paper Co., pf.	....	....	....

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3¼s '60	105	104¾	104¾
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	105¼	105¼	105¼
International Paper Co. 5s '47	101⅜	101⅜	101⅜
Mead Corp. 3½s '53	....	....	....

New York Curb Exchange

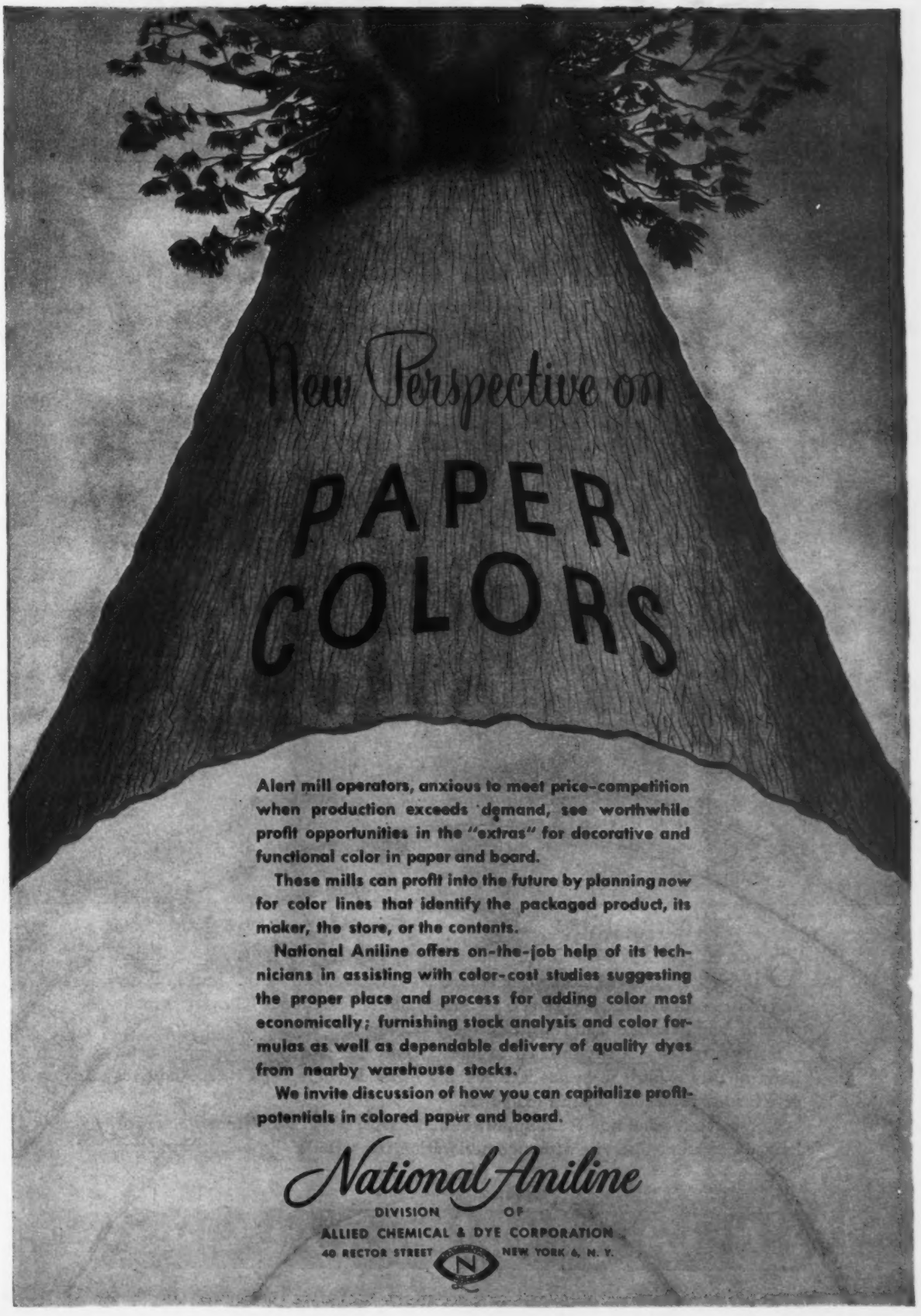
High, Low and Last for Week Ending September 7, 1946

STOCKS

	High	Low	Last
Great Northern Paper Co.	43¾	39	41
Hummel-Ross Fibre Corp.	14⅞	12⅜	13
St. Regis Paper Co.	11⅛	9⅛	10⅞
Taggart Corp.	9⅛	8⅜	8⅜

BONDS

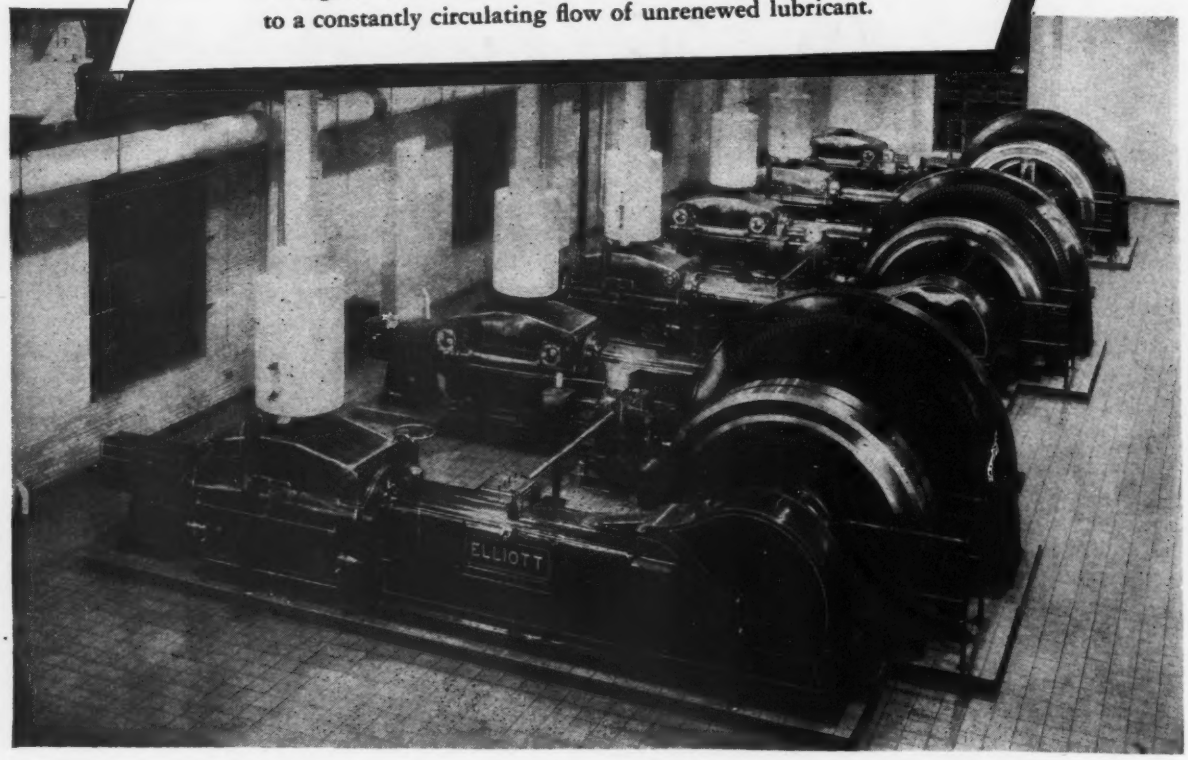
American Writing Paper Co. 6s '61	....	....	....


New Perspective on
PAPER
COLORS
Alert mill operators, anxious to meet price-competition when production exceeds demand, see worthwhile profit opportunities in the "extras" for decorative and functional color in paper and board.
These mills can profit into the future by planning now for color lines that identify the packaged product, its maker, the store, or the contents.
National Aniline offers on-the-job help of its technicians in assisting with color-cost studies suggesting the proper place and process for adding color most economically; furnishing stock analysis and color formulas as well as dependable delivery of quality dyes from nearby warehouse stocks.
We invite discussion of how you can capitalize profit-potentials in colored paper and board.
National Aniline
DIVISION OF
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET NEW YORK 6, N. Y.

PRECISION REFINED FOR PRECISION EQUIPMENT

SINTURLITE

Designed for service where precision parts are subjected to a constantly circulating flow of unrenewed lubricant.



OXIDATION — always a possibility in lubricants which are constantly re-circulated through high speed mechanism — causes gum and sludge which limits oil life and contributes to inefficiency and equipment failure. The proper lubricant is made to withstand oxidation and resist possible breakdown.

SINTURLITE is precision refined to meet requirements of precision equipment. Extra quality is built in by modern refining methods and special care. Additives give further protection against oxidation.

Non-corrosive and non-foaming, SINTURLITE separates readily from water. For long, uninterrupted service without deterioration, use *precision-refined* SINTURLITE.

SINCLAIR INDUSTRIAL OILS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVE., NEW YORK 20

FOR ROLLS THAT CAN TAKE CALENDER STACK "SQUEEZE"

The paper-making life of the bottom and next-to-bottom rolls in a calender stack depends upon how they take the "squeeze" imposed by the weight of the rolls above them, plus loading.

If a roll is to operate with lasting efficiency under this tremendous pressure, it must have a crown of exactly correct shape and amount to compensate for the deflection. To produce this perfect crown consistently on rolls of various sizes requires specialized experience and facilities—of the kind you will find in America's Largest Specialty Roll Shop.

Here, among the unique equipment developed by Farrel-Birmingham during nearly a century of roll making, you will find the Farrel two-wheel swing-rest roll grinder with the Farrel automatic crowning device, which unerringly produces the correct roll shape and amount of crown required.

Here, also, are deep casting pits to take rolls up to 36 feet in overall length . . . a large assortment of "chills" to cast rolls from 5 to 72 inches in diameter and any face length up to 312 inches . . . special tools for machining . . . Farrel roll calipers for close check of accuracy . . . and engineers, founders and machinists with the highly developed skill which comes from long experience in every phase of roll making.

When you need rolls or any of the other equipment listed on this page, call Farrel. Complete information and engineering help is yours for the asking.

FB-299

FARREL-BIRMINGHAM COMPANY, INC.
ANSONIA, CONN.

Plants: Ansonia, Derby and Stonington, Conn., Buffalo, N.Y.
Sales Offices: Ansonia, Buffalo, New York, Pittsburgh, Akron, Los Angeles, Tulsa, Houston, Charlotte

FARREL PAPER MILL MACHINERY

ROLLS: Chilled Iron, Dry Sand, Meehanite, Alloy Iron, Steel, Chromium Plated
FOR: Calender Stacks
Board Calenders
Super Calenders
Glassine Calenders
Friction Rolls
Breaker Rolls
Smoothing Rolls
Coating Rolls
Creping Rolls
Plater Rolls
Cutting Rolls
Paraffining and Waxing Rolls
Saturating Rolls
Silicating Rolls
Miscellaneous Special Purposes
CALENDERS: Paper and Board
GRINDING MACHINES: Roll
CALIPERS: Roll
GEARS, CUT: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)
SPEED REDUCING GEAR UNITS
SPEED INCREASING GEAR UNITS
FLEXIBLE COUPLINGS

Farrel-Birmingham

OPA Loosens Line On Waste Dealers

WASHINGTON — Dealers in waste rags, ropes and strings have been allowed increases in their maximum charges for loading and delivery services, the Office of Price Administration announced last week. The increases, effective September 7, 1946, cover higher costs for labor and materials incurred since the original maximum charges were established in 1942. Paper mills, normal consumers of waste rags, will absorb the increases, OPA said.

The new maximum charges are $2 a ton for loading the waste rags, ropes and strings on a freight car or barge when there is no rail siding or barge dock at point of shipment; $2 a ton when deliveries are made in the seller's own trucks to points within the same city or within ten miles; and the lowest published railroad rate plus $1 a ton when deliveries are made in the seller's trucks to another city more than ten miles away. In each of these three instances, the increase is $1 a ton over the previous maximum charges.

Similar increases were granted by OPA on June 29, 1946, to wastepaper dealers. OPA said that studies had shown the same increases should be granted waste rag dealers, as similar higher costs had been experienced by them, and they also had received no increase in prices for these services since 1942.

OPA said the increases were the minimum required to insure continued operation of dealer-owned trucks, and thereby avoid resorting to higher priced methods of transportation.

American Paper Goods Offers More Shares

BERLIN, Conn.—To provide for expansion and additional working capital the American Paper Goods Company of Kensington has made available to holders of its common stock a new issue at the subscription price of $48 a share.

The subscription will be on the basis of one share of new common stock for each five shares of common stock now held by the stockholder.

President E. S. Lancaster points out the company has sold its property and is now operating a new factory building, which, with its added equipment, will require by next December 31 an increased investment of at least $750,000.

Rapids Standard Describes Rapid-Roller Gravity Conveyor

GRAND RAPIDS, Mich.—The Rapid-Roller Gravity Conveyor, a recent addition to the popular line of Rapids-Standard material handling equipment, is described and illustrated in an impressive new two-color, four-page folder just issued by the Rapids-Standard Company, Inc.

Copy in the folder explains how Rapid-Roller Gravity Conveyor is particularly adapted to versatile handling of boxes, crates, cans with chime edges, kegs and other irregularly surfaced items. Installation photos illustrate how beer kegs and crated machine parts are moved easily and swiftly on Rapid-Roller Conveyor.

A cut-away photograph of the exclusive inner construction of the roller itself shows how the design makes for maximum strength at points of wear, and arrows indicate the various components making up the roller construction.

Truck Strike Hits New York Dailies

NEW YORK — Metropolitan dailies, unable to receive accustomed newsprint supplies on schedule, this week eliminated advertising and cut drastically the size of their editions. Several of the city's newspapers may have to stop publication next week if the trucking strike continues, William Mapel, vice chairman of the Publishers Association of New York City, said on Tuesday as publishers announced further curtailment in the size of their papers to conserve their rapidly diminishing supplies of newsprint.

"No New York newspaper will have to suspend for lack of newsprint during the remainder of this week," said Mr. Mapel, "but next week several will have no newsprint left."

With the publishers shut off from their warehouse supplies of newsprint for eight days because of the strike of Local 807, International Brotherhood of Teamsters, Mr. Mapel reported for them that virtually all New York City papers would appear today without any advertising other than legal and death notices.

"How serious the situation has become," he said, "may be seen from the size of the newspapers. Papers which normally run as high as forty-eight pages on Wednesday, will be down to sixteen pages or less. Most drastic cut will be by The Mirror, which will be down to eight pages. The Times, Sun and World-Telegram have cut to sixteen pages. The Herald Tribune and The Long Island Star-Journal are down to twelve pages and The Journal-American to fourteen pages. Drastic cuts of similar nature are true throughout the city."

Newspaper publishers throughout the city had stored vast quantities of newsprint in their plants in advance of the strike, but on the average could lay in no more than a two-week supply because of space limitations. Virtually all newspapers have large warehouses in the city that they are unable to tap because of the truck strike.

The newspaper PM, which formally carries no advertising, was down to sixteen pages yesterday, eight fewer than it had run on Monday.

B & P Entertains At Butterfield Club

CHICAGO — Among the golf outings held in Chicago during the summer months which are the most popular and which get the most discussion, must be listed the one recently sponsored by Bermingham & Prosser, prominent paper distributors. The party, held last week, began with a dinner at the Drake Hotel when the Calcutta sweepstakes program was explained and arranged, and continued on to the Butterfield Country Club the entire next day. Suppliers and guests who enjoyed the outing selected their foursomes in approved "Calcutta" fashion and the moanings of the losers, the joy of the winners and the muttered satisfaction of those who "broke even" could still be heard in the loop this week.

Midwest Demand Ahead of Profits

(Continued from page 9)

shortages of wood pulp and other factors.

Mr. Knox mentioned as one of the most popular new items in the coarse paper field, the making of multiwall sacks, utilized in packing flour and sugar and replacing cloth bags to a large extent. The product is also widely used in packing building materials such as cement and gypsum. This product, he indicated, was simply another example of more uses for paper which were draining away at the available supply. The Chicago Paper Association spokesman said some paper items were "woefully short" because manufacturers have converted production from utility items to more profitable ones with many manufacturing concerns formerly making utility items on which price ceilings were not a factor before the war, now turning to other products which may not be so needed or scarce but which yield a better and more equitable return.

Another Chicago spokesman whose name was not used pointed to an April Department of Commerce report to show that United States paper exports are an important reason for the shortage. In addition to a long list of exports of badly needed goods, the paper spokesman pointed out that the United Nations administration took 1,911,912 pounds of paper during the first four months of the year including 328,265 pounds of scarce toilet paper.

Pro-Art Buys Darling Plant

BUENA VISTA, Va.—Darling & Company, manufacturer of boxed stationery, has been sold to the Pro-Art Paper Company of Philadelphia, and the machinery is being moved to a factory in Philadelphia.

QUALITY
GDC
SERVICE
DEPENDABILITY
GENERAL DYESTUFF CORPORATION

Purchasing Agents Deplore Exports

NEW YORK—The general paper situation is getting no better fast, according to the National Association of Purchasing Agents. In its systematic survey of industry the association has placed the paper industry in the care of a committee headed by T. A. Corcoran, of the Courier-Journal and the Louisville Times. He reports that most experts can see no possibility of relief from the tight situation this year. Some say there will be no change until mid-1947. Current production is on the basis of 20,000,000 tons annually. Prewar, this was in excess of what the economy could use. But demand—fictitious or real—seems to keep just a little ahead.

Edgar McCulley points out that exports of fine papers from this country to Europe are more than five times greater than in a good prewar year. This is making a bad situation worse. Perhaps it is necessary for American mills to do this in order to show a profit. If it isn't, however, it is a short-sighted policy because, when things are normal again and orders are hard to get, these lush foreign markets will not be available. Possibly a little less profit now in the interest of good friends later, when things are tough again, would be smart.

Wood pulp conditions continue serious. Lee Weber says they have changed in the last month—from confused to chaotic. He considers the wood pulp situation in the U. S. today worse than it has ever been in the history of the industry. Swedish and Canadian producers are reported holding out for 10 percent to 15 percent increases in price. Finland is the one bright spot. That brave and intelligent "enemy" is expected to increase shipments of pulp threefold in the last half year, and to reach a total of 200,000 tons in 1947.

The third quarter of 1946 may well show up in the records as the period of greatest scarcity of fine papers for the whole war period, according to F. E. McCulley of the Courier-Journal. There are many legitimate reasons offered by mills to explain such tight conditions as currently exist that can be accepted at face value as partially responsible and contributing factors. There are certain other factors that contribute to this condition that perhaps cannot be accepted as easily. One such factor is export shipments and this has been a subject which usually resulted in a very noticeable lag in the conversation. In fact, the conversation came to a complete halt as most mills, apparently, had not given any thought to it.

It now appears, from figures available at the Department of Commerce, that in the first four months of 1946, American fine paper mills exported to overseas customers, other than UNRRA, 58,400,000 pounds of paper. It also appears that in 1937, one of our best prewar years for export sales, the total overseas shipments of fine paper were on the order of 32,000,000 pounds in 12 months. If exports continue at the same rate for 1946 as were actually shipped in the first four months of this year, our total 1946 exports, other than UNRRA, would come to some 175,200,000. The 58,400,000 pounds shipped in the first four months is quite a lot of paper to take out of an already tight domestic market. To continue such shipments for the balance of 1946 would seem to ignore the interests of too many people in this domestic market upon whom these mills have depended in the past and must depend in the future as the major outlet for their production.

There can be no quarrel with any mill for conducting its operation in any manner that it sees fit to insure a profitable operation. As a matter of fact, unless the operation is a profitable one, no mill would be a dependable source of supply as it would not be with us long. Most buyers are very well aware of the punishing conditions under which the fine paper mills have had to operate and are completely sympathetic with their attempts to secure fair and reasonable returns on their operations. There should be other ways of accomplishing this result, however, that would not divert such large tonnage of badly needed paper to an export market, however attractive it may presently be, at such a critical time.

OPA has approved a $7.00 per ton price increase effective August 8 adds Corcoran. This is only 20 cents more than the change in the exchange rate, and Canadian producers are reported asking for more. Reports indicate the possibility of an $80.00 price, which would mean an additional $5.00 increase. Again, this writer suggests caution. Each increase brings us closer to the point where publishers can no longer absorb it. If consolidations and suspensions result, newsprint producers in the long run will suffer. It takes vision and real business statesmanship to look beyond the present sellers' market and see the value of good will over the next decade, that could be built by a stable price policy now.

One large U. S. producer had that vision 26 years ago and ever since has been able to operate at near-capacity and at a profit. This same producer has again acted to weld its fortunate customers closer to it by announcing that the recent increase would be the last this year.

A.S.M.E. To Meet in Boston

BOSTON—The American Society of Mechanical Engineers will hold its 1946 Fall Meeting here September 30, October 1, 2 and 3, at the Hotel Statler. In point of time and in attendance this important engineering meeing, which was curtailed during the war, is expected to exceed all its previous records.

NEPCO Starts Work On Office Building

PORT EDWARDS, Wis.—Construction has been started on a two-story addition to the Nekoosa-Edwards Paper Company mill office here. The present structure also is being modernized. The new addition is to provide more office space for the technical and personnel administration departments and extra space for the laboratory.

The 43 by 20 feet wing will adjoin the mill and will be constructed of wire cut brick. Donn Hougen, Wisconsin Rapids, designed the structure.

The entire front and interior of the present building will be remodeled to conform with the modern design of the addition, which includes glass brick block windows spaced by limestone spandrels. The entire addition will be air-conditioned with a ventilator for each unit to eliminate heat loss and dirt infiltration. The laboratory will be furnished with a separate system to prevent re-circulation of obnoxious fumes and gasses.

The department of personnel administration will occupy three new offices on the first floor of the addition, while additional laboratory and office space for the technical department will be set up on the upper floor. The administrative work of the technical department will be facilitated by three new offices.

International Paper Calls All Remaining Preferred

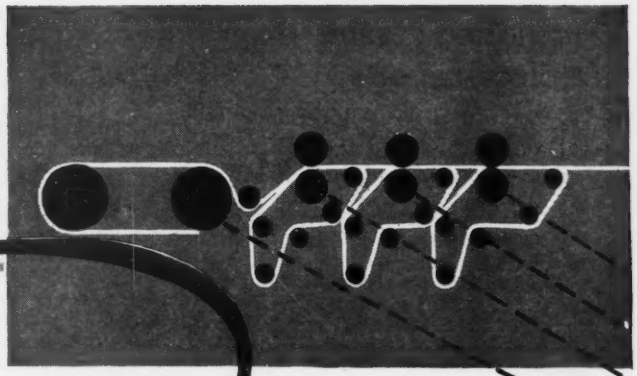
NEW YORK—The Board of Directors of International Paper Company today called for redemption at the opening of business October 15, 1946, all remaining shares of Cumulative Convertible five percent Preferred Stock at 105 and accrued dividend, totaling $105.21 a share. This is the fourth and final call of the five percent Preferred Stock.

The Board of Directors declared the initial quarterly dividend of $1.00 a share on the Cumulative $4 Preferred Stock; the regular quarterly dividend of $1.25 a share on the Cumulative Convertible five percent Preferred Stock; and a quarterly dividend of 50c a share on the Common. All dividends are payable Sept. 30, 1946, to holders of record Sept. 20, 1946.

New Booklet Tells of Preformed Wire Rope

CHICAGO — The Preformed Wire Rope Information Bureau, has just published a new book "Preformed Wire Rope — What it is — What it does".

Well illustrated, and in three colors, this book tells the story of the development of preformed wire rope and what that development has meant to all industry. In non-technical language it tells what the preforming process does to the wires in a rope and what effect it has on the rope's final service.



New G-E MULTIPLE-GENERATOR SECTIONAL DRIVE

...helps you maintain higher running speeds,

...reduce spoilage losses,

...increase production

Here's the newest development in sectional paper-machine drives, designed by G.E. to help you boost output and reduce costs. It's a multiple-generator sectional drive and it's *simple to install, simple to operate,* and *simple to maintain.* Thanks to more than five years of war-accelerated development in the design and application of electronics and amplidynes, G.E. now brings you smooth, constant paper speed and tension control at less cost. Your machines can operate at higher running speeds—you can reduce spoilage losses—you can increase your output.

Easy to install

The controls for each section of a G-E multiple-generator drive system are separately "packaged" in modern panels and completely assembled in our factory. They require no extensive adjustments or checking of interlocking circuits.

Power and control wiring is much simpler than that used in older drives because no intricate controls are needed for interlocking relays with other section-control panels.

Easy to operate

You can start several section drives simultaneously, each drive coming up to a preset speed quickly and smoothly. Load or draw changes in any one section do not disturb adjustments in other sections.

Draw adjustments for any single section are easily obtained by means of a small rheostat. Slack take-up is easily accomplished without affecting draw adjustments. Response to speed and load changes is so fast that over-correction, unavoidable with slower mechanical regulators, is eliminated.

Easy to maintain

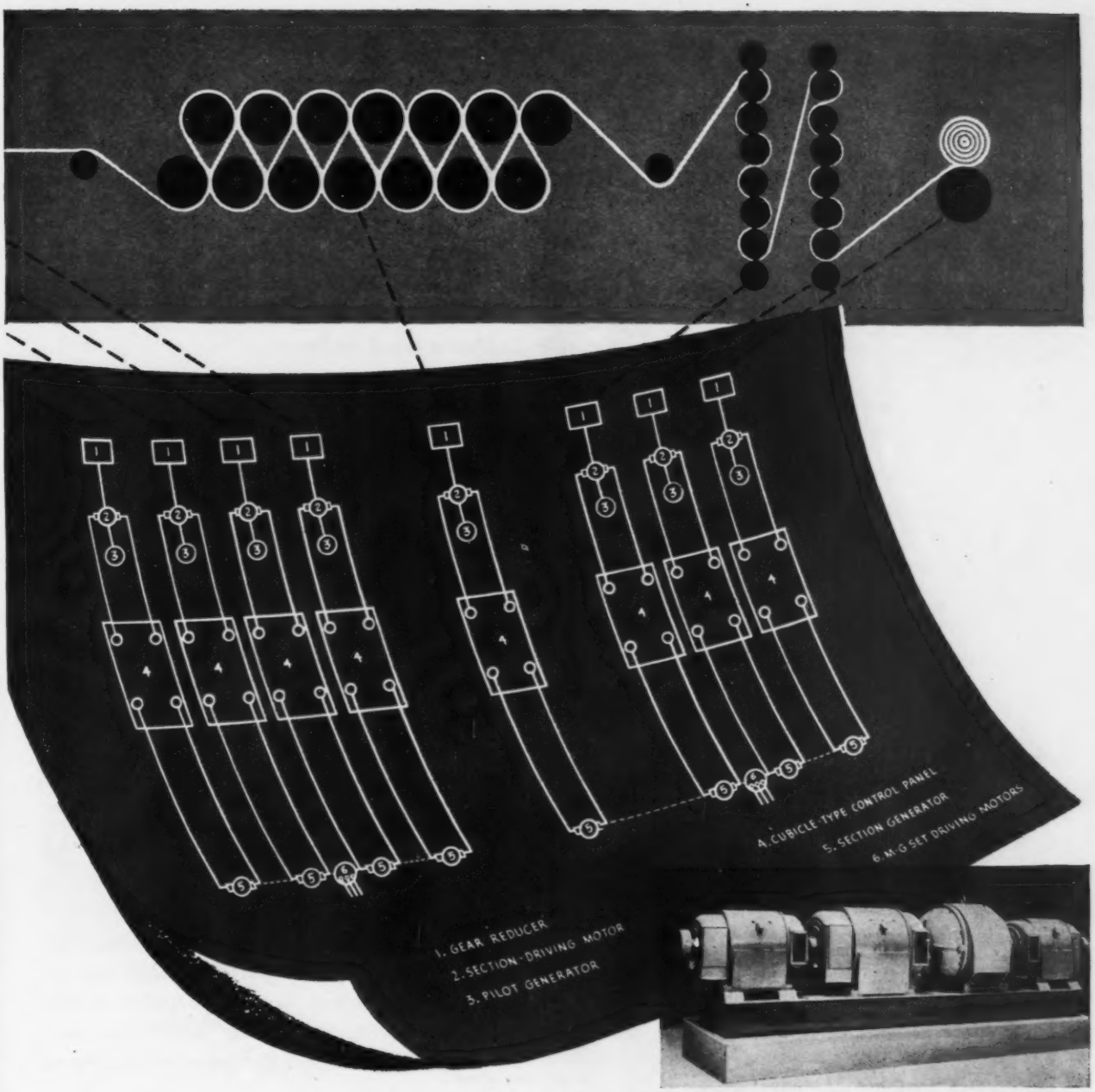
All wiring and control devices in a G-E multiple-generator drive are incorporated in simple, dead-front cubicles, all of which have identical contents and arrangements except for minor differences necessitated by varying ampere ratings.

The electronic speed regulator requires little inspection and maintenance for there are no gears, cone pulleys, or other mechanical devices to get out of order. Replacements are limited largely to standard inexpensive electronic tubes.

"Down time" for wash-up, inspection and maintenance of the paper machine itself is greatly reduced because each section drive can be jogged or operated at slow speed simultaneously with or independently of other sections.

First to build a multiple-generator sectional drive for paper machines, G.E. continues to pioneer in the design and engineering of efficient, low-cost paper-mill drives. Other improved drives have already been developed for chippers, grinders, stock-preparation machines, super-calenders, and winders. Why not consult your nearest G-E sales engineer now while your plans are still in the formative stage? *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

PAPER-MILL *Drives*



G-E MULTIPLE-UNIT MOTOR-GENERATOR SETS
are sturdy, give long, reliable service and require no more than routine maintenance check-up.

In a G-E multiple-generator sectional drive, the drive for each section is, in effect, a complete and independent system. Each section motor is powered by its own adjustable-voltage generator whose output voltage is varied to give precise control of the speed of each section. There is no connection between individual section controls except for a stable reference voltage feeding the electronic-pre-amplifier in each control panel. The multiple-generator system permits an adjustable-voltage drive to perform to its best advantage by operating only on generator voltage control without change in motor-field excitation, thereby giving full motor-torque efficiency under all operating conditions.

THE MULTIPLE-GENERATOR CONTROL PANELS
are steel enclosed in dead-front cubicles that protect personnel and equipment, yet are easy to inspect. They can be installed individually or in groups.

GENERAL ELECTRIC
660-24-137

*

You'll never know what you've been missing

Until you try

American Anode latices and mixes

for coating and impregnating paper...

Many paper chemists and engineers haven't had the chance to learn of the remarkable progress made recently in the field of coating and impregnating paper with latices and water mixes. They haven't had a chance to discover that the use of American Anode latices and mixes in a surprisingly large number of cases will result in a *better* product at a *lower* cost.

That's why we hope you will tell us what you are doing and how you are doing it. Give us the opportunity to work with you on standard products as well as new developments. We think that we can help you in a way that you'll like.

You'll like the inherent safety features of water systems, too; no dangerous, explosive solvents; no cumbersome and expensive recovery systems.

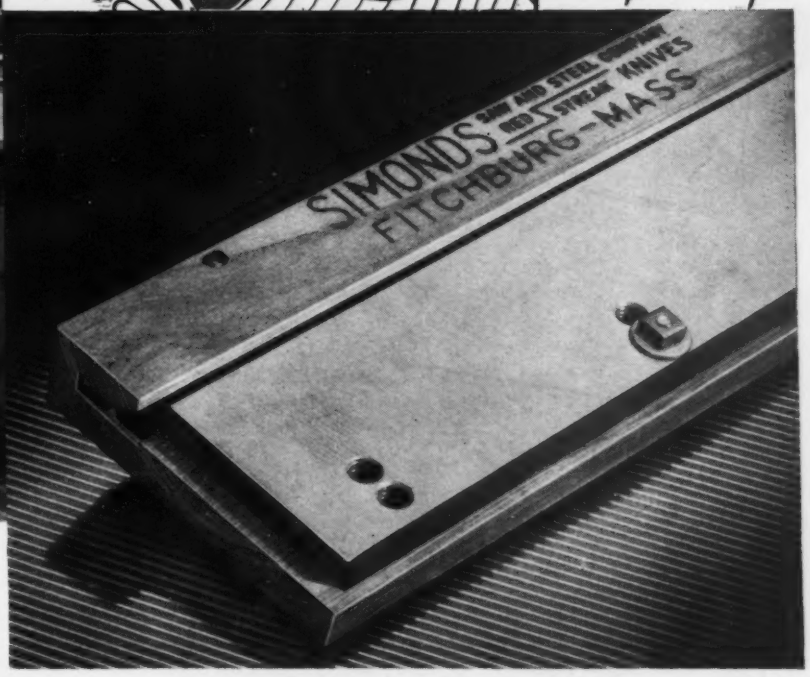
Latices and mixes of natural and synthetic rubbers, GEON, HYCAR, neoprene, and Saran are available from our bulk storage. For more information about the *modern* way to coat and impregnate paper, please write Department AD-10. American Anode, Inc., 60 Cherry Street, Akron, Ohio.

The American Anode laboratory in Akron is equipped with the latest and most modern paper testing equipment, and is staffed with people who know how to use it.

AMERICAN ANODE
INCORPORATED

NATURAL AND SYNTHETIC RUBBER LATICES, WATER CEMENTS AND SUSPENSIONS

Hairline Accuracy... and No "Face-Drag"...



...when you Cut Paper with

SIMONDS S-301 KNIVES

These knives are precision-ground for face clearance like the blades of a pair of scissors. And Simonds special S-301 papercutting steel holds a superkeen edge longer than you ever thought possible in any paper knife. So there's no face drag against the stock . . . which means you're sure of clean, effortless cutting, and hairline accuracy.

And for *complete* insurance of clean-cut performance, this edge is delivered to you just the way the inspector okayed it . . . packed in wood so the edge literally "floats in air", beyond all danger of damage in transit.

Order Simonds S-301 Paper Knives from your dealer, or from the nearest Simonds office.

SIMONDS
SAW AND STEEL CO.
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Other Divisions of SIMONDS SAW AND STEEL CO. making Quality Products for Industry

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BRANCH OFFICES: 1350 Columbia Road, Boston 27, Mass.; 127 S. Green St., Chicago 7, Ill.; 416 W. Eighth St., Los Angeles 14, Calif.; 228 First St., San Francisco 5, Calif.; 311 S. W. First Avenue, Portland 4, Ore.; 31 W. Trent Ave., Spokane 8, Washington. ***Canadian Factory:*** 595 St. Remi St., Montreal 30, Que.

"It makes a refiner out of the Jordan . . ."

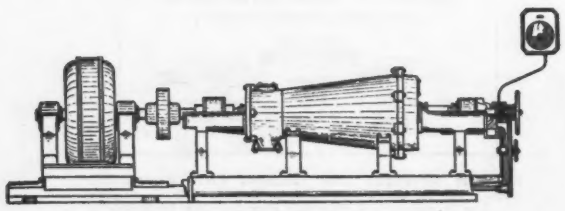
The one thing that amazes all that have seen the installation is the tremendous sensitivity of the instrument. I have never spent money for anything that worked better. It makes a refiner out of the Jordan!

IN these days of rising costs, about the only way a manufacturer can make a profit is to increase his efficiency. And when it comes to paper making, we don't know of any better way to plug profit leaks than to install a Taylor Jordan Plug Pressure Recorder.

These clippings from our customers' letters give you a hint of what they think about this tried-and-true Taylor device for keeping quality up and costs down. We know a lot of other ways too! Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

We have for the past month or so been operating the Taylor Jordan pressure instrument on our No. 1 paper machine and find that it is very satisfactory and have reached the opinion that it is a necessary part of this equipment.

I have run across these instruments in a few paper mills where they are used on Jordans, and they like them very much. They claim that they are very much more sensitive than an ammeter, and just the slightest touch of the handwheel for adjusting the plug shows a registration.



Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

Taylor Instruments

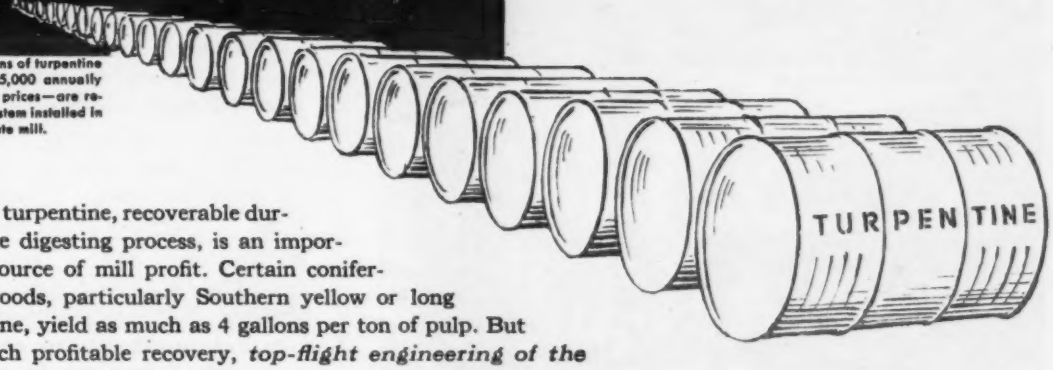
MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY

Six hundred gallons of turpentine daily—worth $45,000 annually at present market prices—are recovered by this system installed in a Southern sulphate mill.

Profits from TURPENTINE RECOVERY



Crude turpentine, recoverable during the digesting process, is an important source of mill profit. Certain coniferous woods, particularly Southern yellow or long leaf pine, yield as much as 4 gallons per ton of pulp. But for such profitable recovery, *top-flight engineering of the system is required.*

Under average mill conditions, Foster Wheeler high yield recovery systems pay for themselves in about 5 months. As a practical example, assume a 100-ton mill processes Southern yellow pine. It would recover daily 400 gallons of turpentine; 120,000 gallons in a 300 day year. At today's market price, 25¢ per gallon, the gross income for 300 days' turpentine recovery would be *$30,000.* A further saving would be realized in the form of heat recovery in the turpentine condenser.

For complete information about this profit-making recovery system, address any branch office, or

FOSTER WHEELER CORPORATION • 165 Broadway, New York 6, N. Y.

FOSTER WHEELER

What is growing depends on who you are

To the manufacturer of paper, growing trees represent a future source of supply of wood pulp . . . the raw material for his paper.

The magazine publisher visualizes a finished product . . . paper . . . flashing through his printing presses in a continuous stream.

The manufacturer of refrigerators sees the beginnings of paper-base laminated plastics which when molded will form inner doors and breaker strips to keep cold in and heat out.

To the fertilizer manufacturer, aware of the hazards to which his material is subjected in transit and in storage, trees represent future sturdy kraft paper bags, with multiple walls, which will assure customer satisfaction.

Executives in the 21 basic industries which use St. Regis wood cellulose products discern the specific end product of the well-managed forest . . . fabricated plastic parts for autos, opaque printing paper for catalogs, durable paper bags for building products, foods and chemicals, or pulp for multiwall paper.

St. Regis stockholders recognize that a future supply of raw material is in the making . . . keeping pace with expanding manufacturing facilities.

On the widely spread timber holdings, consisting of over 1,000,000 acres controlled by the St. Regis Paper Co., selective logging is already in practice, and each year of scientific forest management brings these lands nearer to the coveted goal of sustained yield. Under planned management, and with continually improving methods for the control of fire, insects, and disease, this vast forest area is producing a perpetual supply of raw material for wood cellulose products.

ST. REGIS PAPER Company

St. Regis Products are sold by St. Regis Sales Corporation: NEW YORK • CHICAGO • BALTIMORE • SAN FRANCISCO

Allentown • Birmingham • Boston • Cincinnati • Cleveland • Dallas • Denver • Detroit • Franklin, Va. • Los Angeles • Nazareth, Pa. • New Orleans • No. Kansas City, Mo. Ocala, Fla. • Oswego • Seattle • Syracuse • Toledo • Trenton • Buenos Aires, Argentina • Sao Paulo, Brazil • IN CANADA: St. Regis Paper Co. (Can.) Ltd., Montreal

PRODUCTS: *St. Regis "Tacoma" bleached and unbleached sulphate pulp . . . Multiwall Bags and Bag-filling Machines . . . Printing, Publication and Specialty Papers . . . Panelyte — The St. Regis Structural Laminated Plastic.*

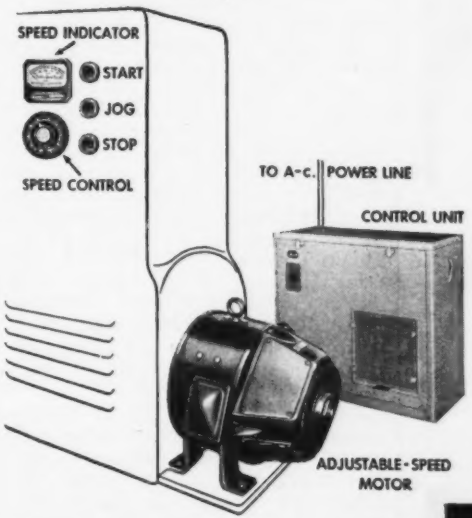
STEPLESS Speed Changes

. . . from A-c. circuits!

RELIANCE V★S DRIVE

V★S, the *All-electric, Adjustable-speed Drive operating from A-c. Circuits,* brings to any production or processing operation an unlimited selection of *stepless* speed changes. Acceleration and deceleration are unbelievably smooth. And every V★S function can be performed automatically or manually, with all-electric control from nearby or remote stations!

Whatever flexibility of operation you need to increase quantity and quality of output can be provided the V★S way—simply, safely and economically. V★S control means instantaneous starts and stops—slow speeds for inching, threading or close inspection of work in process—maintenance of proper tension——reversal at any point desired. For more money-saving facts about the V★S Drive write for Bulletin 311.



Conveniently-packaged, space-saving V★S Drives available in Rotating or Electronic Systems or a combination of both.

RELIANCE ELECTRIC & ENGINEERING CO.

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Appleton, Wis. • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit • Gary Grand Rapids • Greenville • Houston • Kansas City • Knoxville • Los Angeles • Milwaukee Minneapolis • New Orleans • New York • Philadelphia • Pittsburgh • Portland, Ore. Rockford, Ill. • St. Louis • San Francisco • Seattle • Syracuse • Tampa • Tulsa • Washington, D.C. Sao Paulo, Brazil

RELIANCE A-C D-C MOTORS

"Motor-Drive is More Than Power"

Paper Chemicals Introduces Mustik Adhesive for Labels

"MUSTIK" Label Adhesive Paste, a product of the Paper Chemicals, Inc., New York City, differs from the ordinary pastes that are presently on the market because it will adhere labels to all types of surfaces including paper, paperboard, wood, metal, glass, leather, plastics, hard rubber, tile, porcelain, galvanized ware, as well as waxed, varnished and lacquered surfaces. "Mustik" is ideal for applying shipping and instruction labels, express labels, government tax stamps, trade name labels, etc., to corrugated cartons, tin cans, fibre, steel and wooden drums, glass bottles and specialty containers, etc.

"Mustik" is packaged in quart, gallon, and eight-gallon containers. It will be distributed through a limited number of paper merchants in each territory.

Fox River Valley to Hear Freas

APPLETON, Wis. — The Fox River Valley chapter of the Wisconsin Society of Professional Engineers will hear Professor Allen D. Freas of the United States Forest Products Laboratory, Madison, Wis., Friday evening, September 13, at Hotel Retlaw, Fond du Lac, Wis.

Do you know an exceptional procurement man tied to a DEAD END job in some paper merchant organization?

• You will be doing him a very great favor when you call this advertisement to his attention.

Are you stuck in a DEAD END job?

If you are presently working in an executive procurement spot in the paper merchant field, doing a top-flight job, but facing a "dead end" as far as further advancement is concerned... BE SURE TO INVESTIGATE THIS ONCE-IN-A-LIFETIME OPPORTUNITY.

There is a vacant desk in the mill department of this well-established, well-financed, progressive and rapidly-expanding mill-brand paper house. This job, a lofty spot in our executive strata, clamors for the right man—the right man, that is, measured by our particular standards... He must be a highly experienced procurement executive who knows his way around the paper manufacturing industry; who is on cordial terms with paper mill executives. A man accustomed to earning a good salary; who knows how to work closely with a hard-hitting group of associates thinking and living their business 'round the clock; who knows how to cooperate hand-in-glove with a live-wire sales force, and who, with them, believes that the fate of the world rests on the proper solution of their customers' paper-buying problems.

For all of which talent and enthusiasm we will pay extremely well, and guarantee to pay-off liberally on future results.

Moreover, you, as a new employe, will share in all the benefits enjoyed by old hands. Without any cost to you, you and your family are well protected by modern life insurance and health arrangements.

Frankly, we believe that you'll like working with us. We believe that you'll find our overall esprit de corps inspiring and especially conducive to your best work.

We'd like to hear all about yourself in a letter no longer than 2 typewritten pages. But do it today

Box 25A
Paper Trade Journal

Timber Sales Boost West Virginia Profit

NEW YORK—West Virginia Pulp & Paper Company last week reported net profit of $3,695,219, or $3.55 a common share for the nine months' fiscal period ended July 31. This compares with $1,763,215, or $1.39 for the previous nine-months' period.

In addition to the above net, the company reported a non-operating net credit to surplus of $1,251,945 from sales of mature timber from the company's lands. A net of $2,300,173, or $2.18 a common share, against $1,145,783, or 89 cents a share was earned in the comparative six months period ended April 30.

OBITUARY

Julia Marie Cullen

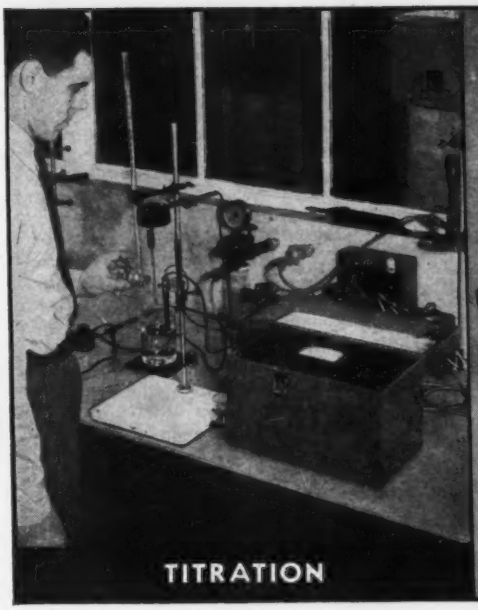
NEW YORK—Mrs. Richard J. Cullen, wife of Richard J. Cullen, Chairman of the Corporation of International Paper Company, died September 5, in New York Hospital after an illness of several months. Mrs. Cullen, the former Julia Marie Schaupp, was born in Rochester, N. Y., and lived in Phoenix, Arizona, where she and Mr. Cullen made their home.

Funeral services were held Saturday, September 7 at 9 A.M. at St. Patrick's Cathedral. Mrs. Cullen was buried in Hamilton, Ontario.

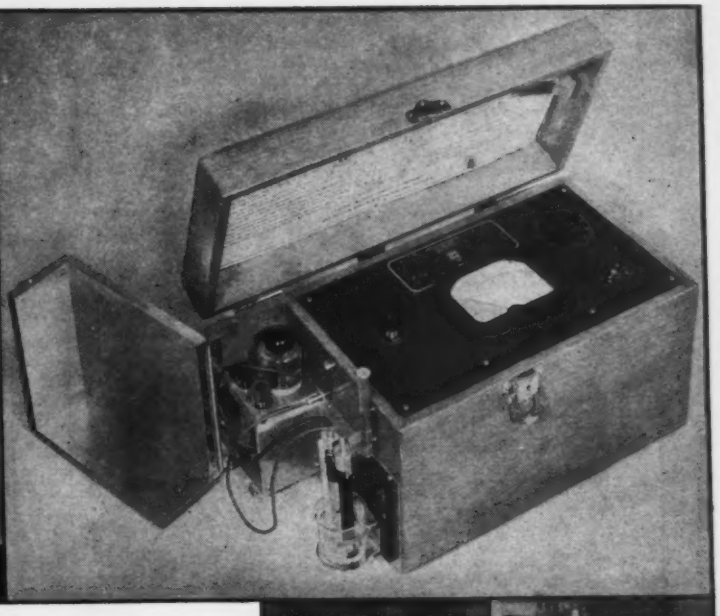
John T. Burruss

The Chicago paper trade and the salesmens associations, both eastern and western, suffered a real loss this week in the death of John T. "Jack" Burruss, of the S. L. Schwarz organization. Jack, as he was affectionately known by hundreds of paper sales executives and mill operators, died at his home in LaGrange, Illinois, on September 3 after an illness which began with a heart ailment last March. Confined to his home for three months, Mr. Burruss had gone back to active business duty in June. The funeral was held in LaGrange on September 5 and was widely attended by representatives of the Salesmens Association of the Paper Industry which he had ably served both as vice-president of the western division and as president of the national body. Forty-eight years old at the time of his death, Mr. Burruss is survived by his wife and four sons.

The former head of the SAPEYES spent most of his business career with the Albemarle Paper Company, leaving it over six years ago to become affiliated with the Crossett Paper Company and coming with the Schwarz organization in a merchandising capacity about a year and a half ago. Always highly entertaining, loyal, energetic and enthusiastic, Jack Burruss will be sorely missed by his many, many friends throughout the country.



TITRATION



pH INDICATOR FOR "EVERYBODY"

Here's the pH Indicator for the man who is *not* a pH expert. It's intended to be carried around and used wherever desired—in plants as well as labs. It's as sturdy and dependable as a temperature indicator. It will stay on the job. To use it, you just make 3 simple adjustments, then put the sample into the beaker and see where the needle points.

"Sticky" weather or surroundings won't affect this Indicator, unless relative humidity is over 95 and ambient temperature is over 85 F. It's fine for laboratories, kitchens, refrigerated chests, packing rooms and power plants.

Solution to be checked can be at any temperature to 50C (120F). Thick solutions and "soft" solids like butter, cheese, dough and many meats, earth, etc., can be checked almost as easily as slurries or clear liquids.

Nearby electrical equipment won't affect this instrument. It requires very little attention. Its scale is substantially longer and easier to read than in any comparable Indicator. Constructionally, it's a fine job. Complete with everything necessary for pH measurements.

Further details are in Catalog E-96(2), sent on request, but if you have a pH measuring problem we suggest you check with an L&N engineer.

WATER CHEMICALS

CONTROL-LAB TESTS

METALS BOTANY

LEEDS & NORTHRUP COMPANY, 4967 STENTON AVE., PHILA., PA.

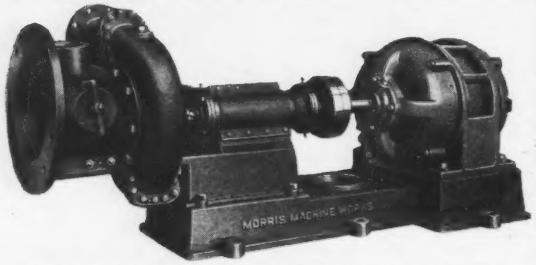
LEEDS & NORTHRUP

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

Jrl Ad E-96(25)

PUMPS BY MORRIS

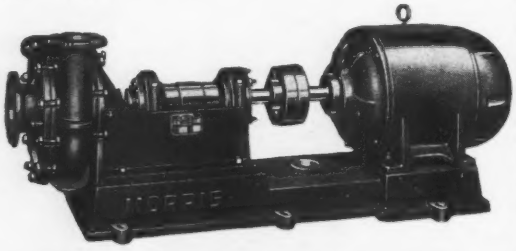
FOR EFFICIENT SERVICE IN THE PAPER INDUSTRY



MORRIS *Centrifugal* STOCK PUMPS

Will maintain initial capacity over longer periods at lower costs with fewer shut-downs and replacements.

They are ruggedly constructed, require little maintenance, and have a large reserve of extra capacity. Morris Design guarantees more uniform flow, reduced air entrainment losses, and less dehydration.



MORRIS BLACK LIQUOR PUMPS

Pumps of ordinary clear-liquid design are inadequate for handling black liquor containing solids. That's why Morris Black Liquor Pumps are *solids-handling* pumps. They are based on Morris' long experience in building pumps to withstand the grinding action of all types of abrasive mixtures. The wearing parts are more than twice as thick as conventional clear-liquid pumps, and where required are made of special abrasion and corrosion resisting alloys.

Consult MORRIS engineers regarding your pump problems.

MORRIS MACHINE WORKS

BALDWINSVILLE, N. Y.

MORRIS

CENTRIFUGAL PUMPS

Norton Perfects 32 Alundum As an Improved Abrasive

A new aluminum oxide product known as 32 Alundum abrasive is announced by Norton Company, Worcester, Mass. It is made by a unique electric furnace process which produces grains of an improved shape and structure, each grain being a complete, single crystal. Tests conducted in hundreds of plants have shown that grinding wheels made of the new 32 Alundum abrasive have a definitely faster and cooler cutting action, have longer life and require fewer dressings.

When all other types of aluminum oxide abrasive are produced in the electric furnace the crystals form in a solid mass, the size and shape of each crystal being affected by the adjacent crystals. Thus they bear no relation to the size and shape of the final grains and a crushing operation is necessary to reduce the abrasives to grains of commercial sizes.

The grains of this new 32 Alundum abrasive, however, form in the electric furnace as single, individual crystals which do not require any crushing to size. Inasmuch as the crystals form individually they assume a chunky, nubbly shape. The many plane surfaces form both exterior and reentrant dihedral angles, the latter making definite rake angles which increase the cutting efficiency of the grains.

New Laminators Plant To Protect Printed Paper

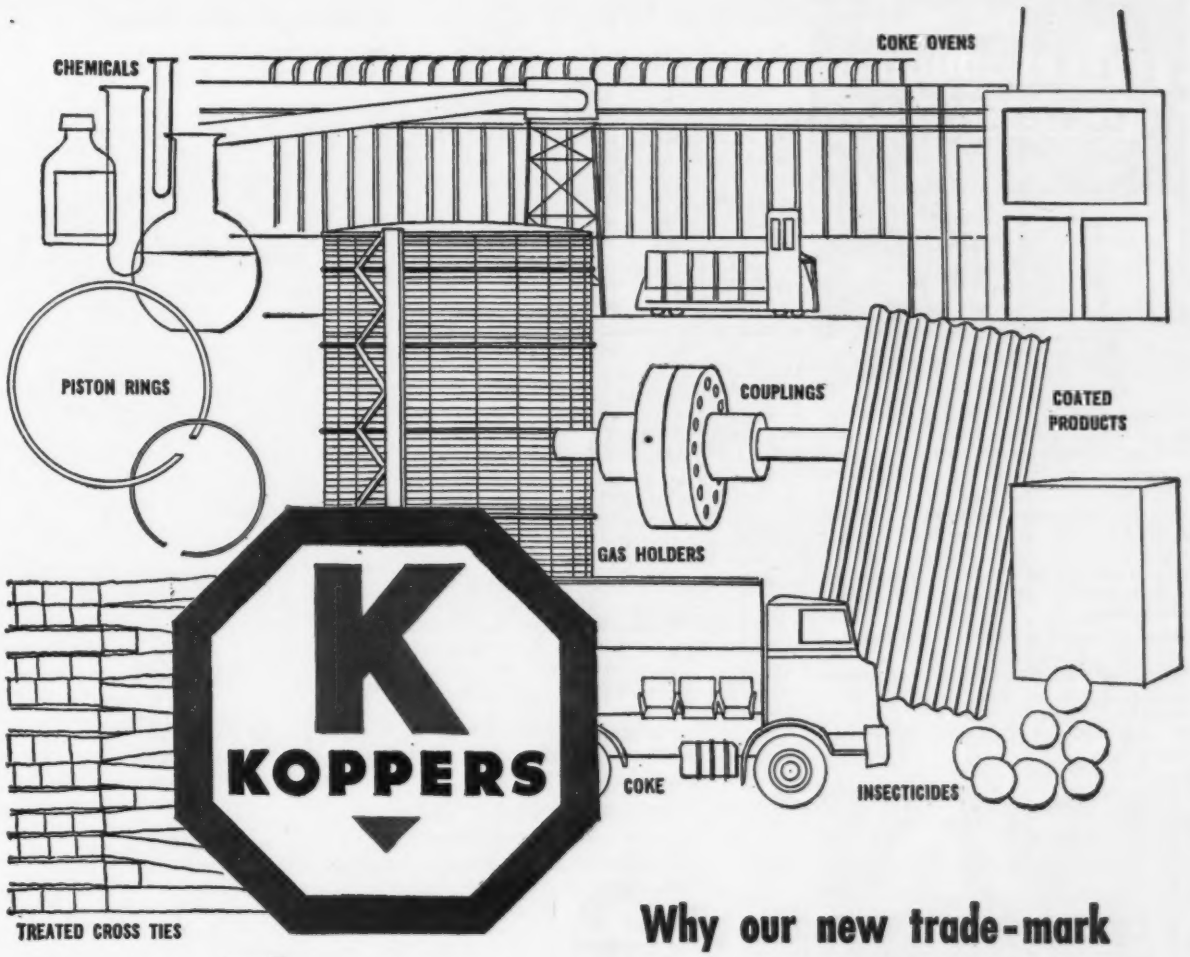
WORCESTER, Mass.—Philip Gold has launched Laminators, Inc., which laminates printed paper, protecting the surface with a thin, glossy, transparent coating of chemically-treated fibrous substance.

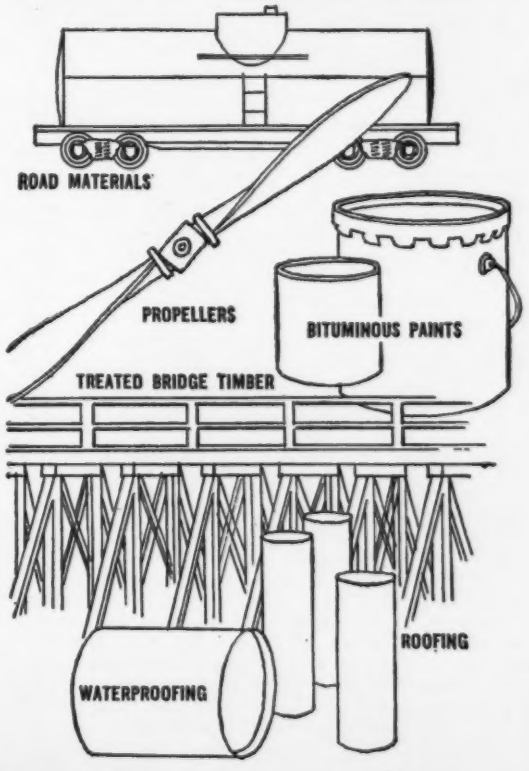
The process reduces wear and, when applied to printed paper, makes washing possible. Leading users of the process are wallpaper manufacturers, who use the process for covering products used in decorating household furniture, drawers and shelves. During the war, treated paper for shipping parcels overseas was in great demand.

Gold has been associated with the industry for the past 13 years.

Oakite Advances Leonard To Be Sales Manager

NEW YORK—J. C. Leonard has been named as sales manager of its Industrial Marketing Division of Oakite Products, Inc. Associated with the Oakite organization in the servicing of its specialized cleaning materials and equipment for over 22 years, the last 16 years of which was in the capacity of Manager of the Company's Chicago Division. Mr. Leonard assumed his new duties on September 1, 1946. He will direct the marketing and servicing activities of Oakite's industrial field staff from the general offices of the company in New York.





Why our new trade-mark is important to you

Every day, you place your health, your safety, your children, even your life at the mercy of manufacturers whose products you trust.

Often you do it because of some small mark which doesn't actually say anything in words, but which says volumes in the meanings you read into it.

That's what trade-marks mean to the American people. In effect, the trade-mark says, "Here is a manufacturer who is so sure of this product that he puts his name on it."

That's why our new Koppers trade-mark is important to you.

There are dozens of Koppers products; there will be dozens more as opportunities expand in the rapidly growing chemical field.

Often you will not be able to see the Koppers label on those products—you can't see it, for example, on road paving material or on a bottle of medicine—but the roadbuilder sees it and the medicine maker sees it, and their confidence in it is your safeguard.

Koppers also is well known as a dependable source for many other products and services which we furnish directly, such as the design and construction of coke ovens, roofing material, piston rings, couplings, propellers for your private plane, coke for your furnace, moth balls for your clothes, paints, pressure-treated wood and scores of others.—Koppers Company, Inc., Koppers Building, Pittsburgh 19, Pa.

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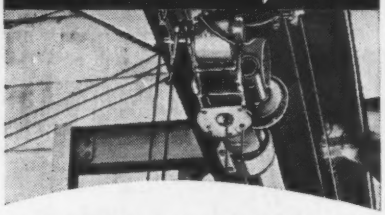

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Ontario Experiment Pays Off in Profit

TORONTO, Ont.—Ontario Paper Company's wartime venture, the manufacture of alcohol from waste sulphite liquor, is more than paying off in peacetime markets. The entire annual production of around 750,000 gallons is being readily absorbed by Canadian manufacturing and commercial concerns whose products range all the way from anti-freeze to pharmaceuticals. The rather pleasant odor, among other qualities, has been lately gaining an increasing market for this "tree sugar alcohol" in the cosmetic and pharmaceutical field.

Contrary to widespread belief, this war-born industry has been able to withstand the loss of the rubber market. Forced out of the big rubber field, for the time being at least, by the less costly "buna" process using crude oil, an active research department was not long in developing other outlets.

Started in 1943 under the emergency of war, the company was the pioneer on this continent in making industrial alcohol out of the waste liquor resulting from the manufacture of newsprint. The process used is still the only one of its kind in Canada.

In the new process, full use is made of the natural "tree sugar." The waste sulphite liquor, actually a dilute solution of this sugar, is diverted into storage tanks where yeast is added and fermentation takes place. The fermented liquid, containing approximately 1% alcohol, is then distilled, the remaining product being 190-proof alcohol.

Kuc Firm Will Enlarge Former Snell Plant

HOLYOKE, Mass. — Ground will be broken in two months on a new plant for the Samuel Snell Company, at 98 Pine St. The new owners, John D. Kuc & Sons, announced this expansion program this week. The Kuc firm bought the Snell concern from Mrs. Stanley Schade and Miss Eileen Delaney in May. The Kucs today acquired the parcel of land north of the Snell plant on Pine St. from the Holyoke Water Power Company, and will use it for its new building. The lot faces 28 feet on Pine St. and extends back 118 feet to the center of the alley line.

The Samuel Snell Company, was established here in 1875 and has long been a prosperous business allied with Holyoke's paper industry. Its principal product is drainer tile used extensively by paper mills here. The late Samuel Snell established the business and the late James J. Delaney was associated with it for many years.

Representatives of the Kuc concern said that upon the completion of the new plant, the present building, a wooden structure, will be razed. That part of the property will be used for storage.

Package Machinery Plant Up for Sale

SPRINGFIELD, Mass. — A price of $350,000 was placed on the Birnie Avenue factory of the Package Machinery Company, following a meeting of stockholders last week to ratify the finance plan presented by directors for purchase of the Pratt and Whitney plant in East Longmeadow from WAA and expansion of this industry.

The property now offered for sale through Henry M. Clark Company, real estate agency, will be available for occupancy by January 1 when Package Machinery will have installed its equipment in its new East Longmeadow factory.

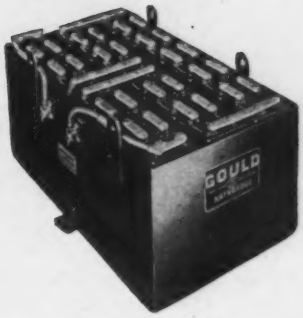
This property has 140,000 square feet of floor space, 82,000 square feet of land, 400 foot frontage on the Boston & Maine Railroad and a similar frontage on Birnie Avenue. The building has three stories and a basement and is of heavy mill construction brick. It has been thoroughly modernized with fluorescent lighting equipment. Only 50 per cent of the land is used by the buildings so that there is room for expansion as well as for loading and unloading of trucks on the grounds.

No date has yet been set by Package Machinery for handling over the big check to WAA, the largest ever to be passed by a Springfield industry. An official at the plant said this week that the concern is still awaiting slow moving government formalities before it can take possession of its new property. It is hoped the $1,750,000 deal will be completed this month and a start on the big moving job can be made, but there are no indications yet from WAA when the deal will be formally completed.

Pabst Sets Up Laboratory To Expand Its Research

MILWAUKEE — The Pabst Brewing Company has announced an expanded program of Research under the direction of Dr. Alexander Frieden, who recently joined the organization.

A Research building is now under construction at Milwaukee. It consists of three stories, each of about 9,000 square feet. The first floor is for offices and pilot plant. The second floor will house the Theoretical Laboratories and the third floor the Applied Laboratories. The present groups consisting of the Bacteriological Laboratory headed by Dr. J. C. Hoogerheide, the Biochemical Laboratory headed by Dr. Harold Levine, the Physical Chemistry Laboratory headed by Dr. W. D. Claus, the Organic Chemistry Laboratory headed by Dr. S. A. Morell and the Chemical Engineering Laboratory headed by Mr. P. Deren will be enlarged and the work expanded. In addition to the above, it is contemplated to set up a laboratory on fundamental studies of flours and starches.



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TAPPI Completes Its Programs For Three Fall Meetings

With its announcement of three Fall Meetings to be held during the next few weeks the Technical Association of the Pulp and Paper Industry also has made public program details for each that hold a good deal of promise. The meetings are to be held in Detroit, September 26-28, in Milwaukee, October 2-4, and in New Orleans, October 14-16.

For many, such focal-point meetings are of more intrinsic value than the great TAPPI conventions held in February when nearly every ramification of the industry's technology is presented. There is a need for both types of meetings and few who are responsible for the manufacturing progress of the industry can afford to be elsewhere when such meetings are held. The February meeting is like a bulge in a military advance. It represents the frontier of progress and reveals the advances made in pulp and paper technology from year to year. However, TAPPI's new style of fall meetings provides an opportunity to take up the slack and really delve into operation technique in all of its details.

Hotel reservation requests for all Three Meetings should be sent to the Association Office, 122 East 42nd Street, New York 17, N. Y.

THE DETROIT MEETING

Headquarters: The Statler Hotel, Detroit, Mich.
Dates: September 26-28, 1946.
Subject: The Present Status of Wood as a Raw Material for the Pulp and Paper Industry.
Program Chairman—Harry F. Lewis, Institute of Paper Chemistry, Appleton, Wis.

Thursday, September 26th

10:00 a.m. (Grand Ball Room, Statler Hotel)
Business Meeting, including presentation of the proposed revision to the Association's Constitution.

11:00 a.m. "Some Economic Aspects of the Pulpwood Situation" by Ruth Shallcross, Institute of Paper Chemistry.

2:00-4:30 p.m. (Main Auditorium Rackham Engineering Building)
Session Chairman—Dean Dana, University of Michigan.
A Survey of Available Wood Stands in the United States and Canada.
New England and Eastern United States —V. L. Harper, Director, Northeastern Forest Experimental Station.
Pacific Coast—H. J. Andrews, Regional Forester, Region 6.
Lakes States—E. L. Demmon, Director, Lake States Forest Experimental Station.
South—I. T. Haig, Director, Southeastern Forest Experimental Station.
Canada—D. A. Macdonald, Acting Dominion Forester (tentative).
Summary and Analysis of the Survey from the National Viewpoint—E. C. Crafts, Chief, Division of Forest Economics, U. S. Forest Service.

7:00 p.m. Grand Ball Room, Statler Hotel.
Toastmaster—G. W. E. Nicholson, President, TAPPI, Vice President, Union Bag & Paper Company.
Address—Reuben B. Robertson, Sr., President, American Paper and Pulp Association, President, Champion Paper & Fibre Company, Canton, N. C.

Friday, September 27th

9.30-12:00 (Rackham Engineering Building)
Session Chairman—K. S. Trowbridge, Logging Engineer, American Pulpwood Association.
New Developments Relating to Improved Pulpwood Procurement.
Lake States and Eastern United States—J. W. McKnutt, Kimberly-Clark Corporation.
Pacific Coast—Axel Brandstrom, formerly Chief Forester, Crown Zellerbach Corporation.
South—C. E. Knapp, Logging Engineer, Southern Pulpwood Conservation Association.
Canada—Alex. Koroleff, Manager, Woodlands Section, Canadian Pulp and Paper Association.

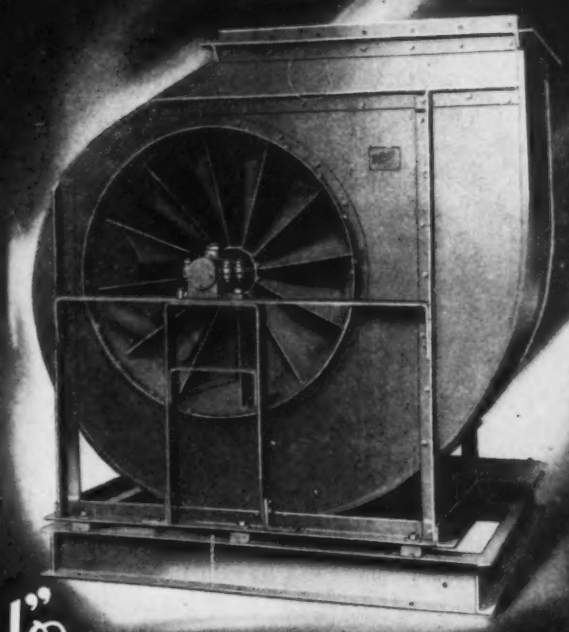
2:00-5:30 (Rackham Engineering Building).
Session Chairman—Milton O. Schur, Technical Director, Ecusta Paper Corporation.
Pulping Characteristics of the Available Species.
Lake States and Northeastern Woods—M. W. Bray, J. N. McGovern, and E. R. Schafer, Forest Products Laboratory.
Pacific Coast Woods—R. S. Hatch, Director, of Research, Weyerhaeuser Timber Company, Pulp Division, and Walter Holzer, Crown Zellerbach Corporation.
Southern Woods—L. V. Forman and Donald Niemeyer, Institute of Paper Chemistry Summary of the Over-all Wood Situation in the United States and Canada as it Relates to the Pulp and Paper Industry (With consideration given to the various chemical byproducts)—Harry F. Lewis, Institute of Paper Chemistry.

Saturday, September 28th

9:00 a.m. Grand Ball Room, Hotel Statler,
Round table meetings of all committees of the Technical Associaion of the Pulp and Paper Industry to discuss committee projects and

(Continued on page 38)

VENTILATION THAT "PAYS ITS WAY" IN HIGHER PRODUCTION



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"Buffalo" TYPE "LL" VENTILATING FANS

TAPPI COMPLETES ITS PROGRAMS

(Continued from page 36)

to finalize plans for the sessions of the annual meeting to be held in February, 1947.

THE MILWAUKEE MEETING

Headquarters: The Pfister Hotel, Milwaukee, Wis.
Dates: October 2-4, 1946.
Purpose: First General Engineering Conference.
General Chairman: Edwin F. Burns, International Paper Company.

Wednesday, October 2nd

9:00 a.m. Registration (Hotel Pfister—7th Floor).
10:30 a.m. General Session (Fern Room)—E. F. Burns, Chairman.
Comments on Committee Plans and Program.
1. Remarks by G. W. E. Nicholson, President, TAPPI.
2. Mill Design and Economic Aspects, by Milton Jacobs, Chas. T. Main, Inc., Boston, Mass.
3. Materials Handling, by G. R. Wadleigh, Consulting Engineer, New York, N. Y.
4. Steam and Power, by J. E. A. Warner, Robert Gair Company, New York, N. Y.
5. Mill Maintenance and Materials, by Paul Corning, West Virginia Pulp and Paper Company, Mechanicsville, N. Y.
6. Drying and Ventilating, by A. E. Montgomery, J. O. Ross Engineering Company, Chicago, Ill.
7. Mill Instrument Control, by R. W. Porter, Chemical & Metallurgical Engineering, New York, N. Y.
8. Chemical Engineering, by R. P. Whitney, University of Maine, Orono, Maine.
9. Engineering Research, by W. G. MacNaughton, News Print Service Bureau, New York, N. Y.

12:30 p.m. Luncheon—R. G. Macdonald, Chairman.
2:00 p.m. Mill Maintenance and Materials Session, Paul Corning, Chairman.
1. Paper Machine Maintenance, by E. D. Beachler, Beloit Iron Works, Beloit, Wis.
2. The Organization and Functioning of the Maintenance Department, by George H. Pringle, Mead Corporation, Chillicothe, Ohio.
3. A Maintenance Control System by E. F. Burns, International Paper Company, New York, N. Y.
4. Kraft Mill Maintenance, by William McIntosh, Union Bag & Paper Corporation, Savannah, Ga.
5. Pump Maintenance, by F. R. Forrest and H. Kingsbury, Allis-Chalmers Mfg. Company, Milwaukee, Wis.
6. Corrosion Prevention, by K. Chamberlain, Gates Engineering Company, Wilmington, Del.

7:00 p.m. Dinner, G. W. E. Nicholson, Toastmaster.
1. Introduction of Guests and Remarks by W. Irving Osborne, Jr., President, Cornell Wood Products Company, Hummel & Downing Company and the National Paperboard Association.
2. Remarks by Mr. Nicholson Regarding Recent Visit to the Scandinavian Countries.
3. Industrial Application of Radio-Active Materials, by John Wilson, Physicist, Allis-Chalmers Mfg. Company, Milwaukee, Wis.

Thursday, October 3rd

9:00 a.m. Steam and Power Session, J. E. A. Warner, Chairman.
1. The Supertherm System of Steam Generation, by Steven Senka, Personal Products Company, Milltown, N. J.
2. Experiences with a Spreader Stoker Installation, by Arnold Urban, Marathon Corporation, Rothschild, Wis.
3. Relative Merits of 200, 400, 600 and 1200 lb. Steam for Power and Process Steam Derivation, by F. E. Laramore of Laramore & Douglas, Chicago, Ill.
4. Turbine Installation and Maintenance, by Hans Dahlstrand, Allis-Chalmers Mfg. Company, Milwaukee, Wis.
5. Is Btu Accounting in the Steam Plant Worth While? by J. E. A. Warner, Robert Gair Company, New York, N. Y.

12:15 p.m. Luncheon—J. W. Hemphill, Chairman. Remarks concerning the Beloit Visit by H. C. Moore, Vice President, Beloit Iron Works, Beloit, Wis.
2:00 p.m. Visit to Beloit Iron Works, Beloit, Wis. Dinner at The Wagon Wheel and return by train to Milwaukee.

Friday, October 4th

9:00 a.m. Mill Design and Economic Aspects, Milton Jacobs, Chairman.
1. High Voltage Power Distribution in Paper Mills by W. C. Bloomquist, General Electric Company, Schnectady, N. Y.
2. Comparison of Cost of Utilities, Paper Mill Piping by O. P. Carter, Lumsden & Van Stone Div., Midwest Piping & Supply Company, Boston, Mass.
3. Trends in Mill Design and Economic Aspects, by John Stadler, Consulting Engineer, Montreal, Que.
4. Economics of Mill Instrumentation, by R. W. Porter, Chemical & Metallurgical Engineering, New York, N. Y.
5. Chain Conveyors and Their Proper Application in Pulp and Paper Mills, by W. M. Huffnagel, Link-Belt Company, Chicago, Ill.

12:30 p.m. Luncheon—George R. Wadleigh, Chairman.
Watch the Waist Line, by C. E. (Dan) Patch, Morton C. Tuttle Company, Boston, Mass.
2:30 p.m. Visits to the plants of the Allis-Chalmers Mfg. Company and the A. O. Smith Corporation in Milwaukee.

Saturday, October 5th

Individuals wishing to visit the paperboard mill and box factory of the Hummel & Downing Company will be welcome. Arrangements will be made for visits to any plants in the Milwaukee area.

THE NEW ORLEANS MEETING

Headquarters: The Roosevelt Hotel, New Orleans, La.
Dates: October 14-16, 1946.

(Continued on page 41)

... it will if you scour felts with easy-rinsing NOPCO* Syntergent K

Scouring felts on or off paper-making machines is a tough cleaning problem and an even tougher *rinsing* problem. But these usually difficult problems are easily solved by NOPCO Syntergent K. A solution made by adding NOPCO Syntergent K to warm or cold water provides a copious and persistent lather of outstanding detergent and wetting properties and *the material itself rinses out freely and completely.*

In refreshing contrast to the difficult rinsing characteristics met with in the use of many felt-washing compounds, easy-rinsing NOPCO Syntergent K assures that no material will be picked up by the paper-sheet and carried to the Yankee drier. This is important, because such material might cause "blowing" or "bagging" as the result of surface lubrication. NOPCO Syntergent K enables the creping doctor blade to work effectively, because the sheet clings to the drier surface—until there isn't a wet spot left.

Dispersible and Stable NOPCO Syntergent K mixes readily with warm or cold water in all concentrations, forming solutions with a Ph of 9-9.5. It is wholly void of inorganic salts and possesses a 30% activity. Two percent NOPCO Syntergent K is dispersible and stable in 5% sulfuric acid and in 4% sodium hydroxide solutions. Its detergency is not impaired by these solutions, nor by other dilute acid or alkaline mediums. NOPCO Syntergent K is also compatible with soap solutions. Write for complete information.

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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

The Market Looks at Paper

Concerned as he may be with processes or with production problems the technician and engineer in the paper field may take only a casual interest in other branches of its interest. Absorbed as he must be with the interests of his customers, with the delivery schedule of his mills and with his own future prospects, the paper salesman properly concentrates his energies on the industry's marketing problems. Both are parts of a bigger picture, however, and the scope of this picture indicates often enough basic facts that have an influential effect on their efforts. For this reason it is comforting to know that a statistical organization which has for its aims the analysis of industries as sources of wealth finds the outlook for the paper industry the brightest in years.

In a study of the paper business—one of a series that it promulgates during the year on various basic industries, the Standard and Poor's Industry Surveys pronounces the affairs of the industry to be in sound condition. Says the current analyses:

"The outlook for the paper industry over the medium term is the brightest in years. Wood pulp imports have fallen short of earlier expectations, because of higher prices obtained in other countries, but production of paper and paperboard nevertheless is running well above last year. Indications are that output this year will total around 19 million tons, compared with 17.3 million tons in 1945, and the previous record of 17.8 million tons attained in 1941."

Difficulties which restricted log cutting earlier in the year have been largely overcome. The report adds Southern operations were handicapped by adverse weather in May, but increased cutting in other sections of the country lifted total pulpwood receipts in the first five months of 1946 about 8 percent over a year before. Inventories also improved and, as of May 31, 1946, were about 23 percent above stocks a year earlier.

Despite withdrawal of prisoners of war from the woods, civilian labor is now adequate to maintain wood cutting at a rate sufficient to build up inventories to carry processing operations through the winter months.

Wood pulp production in the first five months of the year totaled 4,289,000 tons, a 1.1 percent decline from the corresponding 1945 period. On the other hand, consumption increased 13 percent, reflecting the use of imported wood pulp. Imports must continue if paper and paperboard production is to be maintained at the current high rate over the remainder of the year. To date, imports have been disappointingly small, and June receipts, while up moderately, were well below those of January and February.

The 10 percent price increase granted to pulp producers in April, 1946, failed to stimulate imports sufficiently to offset the deficit between domestic production and consumption requirements. At present, the outlook for any material increase in imports from either Sweden or Canada is clouded by the confused pricing situation here. Because of the recent revaluation of the Swedish Krona, the price of Swedish pulp was advanced approximately 14 percent. Canadian prices were raised 10 percent to offset the elimination of the exchange premium on the U. S. dollar.

Demand for paper and paperboard remains far in excess of supplies. According to a Department of Commerce estimate, the shortage of paper and paperboard approximated four million tons on an annual basis in the 1946 second quarter. Indications are that the shortage will not be eliminated this year, particularly since inventories are low in relation to sales. By the end of the year, however, tonnage capacity of the industry is expected to be about 5 percent larger than at the 1945 year-end; an added 2,000,000 to 3,000,000 tons of capacity scheduled in 1947 and 1948 should bring supplies more closely in balance with prospective demand in those years.

Paper and paperboard output in the first five board production rose only 2.3 percent to 3,868,000 tons, from 3,781,000.

Despite adverse industrial conditions which created material shortages and scattered production delays, paper companies fared well in the first half of 1946. Six representative companies were able to increase aggregate sales 2.7 percent, the combined total of $221,226,000 comparing with $215,556,000 for the 1945 first half.

Calendar of Coming Events

September 20-21, 1946—Annual Meeting Southern Paper Trade Association. Hotel Buena Vista, Biloxi, Miss.

September 26-28, 1946—TAPPI General Fall Meeting, Hotel Statler, Detroit, Mich.

October 2-4, 1946—TAPPI Engineering Conference, Pfister Hotel, Milwaukee, Wis.

October 14-16, 1946—TAPPI Alkaline Pulping Meeting, Roosevelt Hotel, New Orleans, La.

October 17-19, 1946—National Paper Trade Association, Fall Convention, Edgewater Beach Hotel, Chicago, Ill.

TAPPI COMPLETES ITS PROGRAMS

(Continued from page 38)

Sponsors: The TAPPI Alkaline Pulping Committee and Chemical Products Committee.

General Chairman—W. F. Gillespie, Gaylord Container Corporation, Bogalusa, La.

Monday, October 14th

9:30 a.m. R. H. Stevens, National Container Corporation, Jacksonville, Fla., Chairman.

1. Methods of Collection of Sulphate Turpentine, by W. P. Lawrence, Champion Paper & Fibre Company, Canton, N. C.
2. Evaluation of Soap Skimmings, by Paul R. Wyley, West Virginia Pulp and Paper Company, Charleston, S. C.
3. Nature of the Extractives in Southern Pine, by C. C. Porter, Southland Paper Company, Lufkin, Texas.

1:30 p.m. K. G. Chesley, Crossett Lumber Company, Crossett, Ark., Chairman.

1. Use of Roto-Clones in the Operation of Lime Kilns, by C. C. Porter, Southland Paper Company, Lufkin, Texas.
2. The Effect of Tension During Drying on Sheet Strength, by J. E. Sapp and W. F. Gillespie, Gaylord Container Corporation.
3. Jordan Refining of Sulphite Pulp, by W. F. Gillespie, Gaylord Container Corporation, Bogalusa, La.

Tuesday, October 15th

9:30 a.m. Alfred Suter, Gaylord Container Corporation, Bogalusa, La., Chairman, Symposium on Sulphate Pulp Washing.

1. Open Top Diffusers, by P. J. Hannan, Southern Advance Bafi & Paper Company, Hodge, La.
2. Washing Pulp in Diffusers, by Robert R. Fuller, Gulf States Paper Corporation, Tuscaloosa, Ala.
3. Washing Sulphate Pulp with Screw Presses, by George W. Brumley, St. Mary's Kraft Corporation, St. Mary's, Ga.
4. Washing Sulphate Pulp with Vacuum Washers, by E. A. Harper and S. P. Moore, Brunswick Pulp & Paper Company, Brunswick, Ga.

1:30 p.m.

5. An Approach to a Critcal Study of Pulp Washing at National Container Corporation, by R. C. Richter, National Container Corporation, Jacksonville, Fla.
6. Our Problem in Washing Sulphate Pulp, by A. Suter, Gaylord Container Corporation, Bogalusa, La.
7. The Effect of Certain Variables in the Operation of Rotary Pulp Washers, by M. Klein and F. S. McCall, Union Bag & Paper Corporation, Savannah, Ga.
8. Round Table Discussion.

Additional Notes

The Gaylord Container Corporation, Bogalusa, La., is acting as host mill for the meeting and cordially invites you to a short cocktail hour Sunday afternoon, October 13th between the hours of 5 p.m. and 6 p.m. at the Roosevelt Hotel, which will be headquarters for the meetings. This will serve as an opportunity of getting acquainted before scattering to the New Orleans restaurants in the old French Quarter for dinner.

Luncheon on Monday and Tuesday will be served at the Roosevelt, and Tuesday night there will be a banquet at the Roosevelt with an outstanding speaker.

Wednesday's program is tentative. If enough members signify their desire to spend the day at the mill of the Gaylord Container Corporation plant in Bogalusa, an attempt will be made to run a special train. At the present time it is not certain that this will be possible. Those that are driving will be welcome at Gaylord's mill before or after the meeting. If a train is run, luncheon—picnic style—will be served at the Bogalusa Country Club with the Gaylord Container Company as host. Many may desire to spend the day in historic New Orleans.

The ladies in attendance will be entertained. The patios of the Vieux Carre, the antique shops of Royal Street will be visited with guided tours.

Western N. Y. Group Adopts Program

NORTH TONAWANDA, N. Y.—At a meeting of committees of the Western New York group of the Empire State Section of TAPPI on September 5th, under the chairmanship of Dr. A. H. Nadelman, a program for the ensuing year was formulated. Meetings will be held on the second Wednesday of each month. These will include at least two joint meetings of the Canadian and American sections.

J. W. Youngchild, chairman of the speakers committee, outlined an interesting series of tentative speakers. Anyone interested in having his name put on the mailing list for notification of meetings should write to R. D. Rusch, International Paper Company, North Tonawanda, N. Y.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
July 27	104.7	July 28	93.4
August 3	105.2	August 4	93.6
August 10	103.4	August 11	93.0
August 17	104.5	August 18	67.8
August 24	106.1	August 25	95.4
August 31	*105.6*	September 1	95.2

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	102.7	100.7	104.6	94.0	*104.7*					

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	78.9	86.7	94.2	93.2	88.2	87.9	88.0	*100.1*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
July 27	95	July 28	95
August 3	98	August 4	94
August 10	96	August 11	94
August 17	98	August 18	67
August 24	100	August 25	99
August 31	*100*	September 1	97

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	99	94	97	89	99					

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Words and Pictures
for the Young Mill Man

from E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Wilmington 98, Delaware

1 YOU'LL HEAR PEOPLE CALL IT A GAME—but it's not. Papermaking is a business, conducted in a serious way for serious stakes. You're out to make good paper at least cost—to give service that wins customers not just for one carload, but for *years.*

3 YOU'VE SEEN EVIDENCE, in your own mill laboratories, that chemistry is important in good papermaking. One of Du Pont's chemicals for papermakers is "Lignasan" bactericide and fungicide. Bled into the system at trouble spots, or added at the beater—about four ounces per ton of dry fiber—"Lignasan" controls slime, keeps the system clean, all the way to the dry cans. 'Most any old-timer can tell you about it, or check with your Du Pont man.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...*THROUGH CHEMISTRY*

2 YOU CAN'T CLIMB FAR just on your looks. You must know your job—and know where to get the answers if *you don't* know them. You can often get authoritative, specialized counsel from your suppliers. One good source is Du Pont.

Du Pont Lignasan
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Bactericide and Fungicide
CONTROLS SLIME—PRESERVES PULP

Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Ground Water Supply And Its Production*

By W. M. Lewis[1]

Abstract

The principal areas of ground water production for industrial and domestic uses in the United States, the importance of this supply, and its physical advantages are outlined briefly.

The method of well construction and production operations including recharging are given together with data on several installations.

Ground water is that water which occurs in quantity beneath the surface, in porous rocks, in fracture zones in the rocks, and principally in the openings between the grains in unconsolidated formations of sand and gravel. In commercial parlance it is usually known as well water and the scientific term for the water bearing formation is the aquifer. Its method of production is by wells which vary widley in type and construction in accordance with existing formations, the location and the magnitude of the development.

While the drilling of wells goes back to Biblical times it should be appreciated that ground water engineering is a comparatively young science and its personnel has been drawn from geological and engineering fields seldom allied with this phase of the water industry. Only recently have engineering courses recognized this subject even to a limited extent. It is not an exact science but a highly specialized field, complicated by unpredictable variations in the formations even within relatively small areas—therefore, conclusions and predictions after test investigations must necessarily be limited in scope of application. Years of experience will be required in a given area before a sufficient background of data is available on which to base sound premises and the application of formulas for estimating production.

Dr. O. E. Meinzer, Geologist in Charge, Division of Ground Water, United States Geological Survey, Washington, D. C., in an article in the *Engineering News Record*, June 8, 1933, called attention to notable improvements in this industry and stated that of a total of approximately 10,000 public water supplies 6,500 were derived from wells. Thus it was brought to the attention of industry and the engineering profession generally that no longer could a well supply be considered a haphazard and uncertain source—on the contrary, it had become a stable and recognized business based upon scientific research, improved drilling processes with emphasis given to sanitary protection in well construction concurrently with the development and improvement of the vertical deep well turbine pump with direct connected vertical motor, which is the most efficient and effective means for delivering the water supply from the ground to the distribution system.

The United States Geological Survey is expanding its field in geological and hydrological exploration, in many states in cooperation with state agencies. Some states already have well organized departments charged with the accumulation of records and data on well supplies. It follows that cooperation with all agencies should be maintained by consulting engineers and the drilling industry to most effectively promote the advancement of this profession.

Physical Advantages of Ground Water

The rate of flow of ground water is very slow through the formations and in some instances is almost static unless affected by a lowering of head by adjacent wells. Ordinarily droughts do not affect well water supplies except in shallow fields where excessive pumpage has occurred which would depress the static level to some extent. Generally, well water supplies are constant and reliable during dry periods, whereas surface supplies are frequently seriously depleted.

Water from modern wells is almost always clear and free from harmful bacteria. Some states require chlorination regardles of purity, others do not but depend on periodic checks on the sanitary quality of public supply under the supervision of the state Board of Health. In most areas ground water is of low and even temperature throughout the year and is a very effective medium for cooling which is of great importance to many industrial processes. Even though mineralization may be high and require treatment, an even temperature and absence of turbidity greatly simplify the process.

Replenishment by Recharging

In some shallow well fields where over pumpage has materially lowered the static levels it has been found practicable to recharge the formations by flooding with surface water and in areas where there is danger from infiltration from adjacent salt water to return unconsumed clean water to the formations through return wells.

Recharging has been accomplished successfully in the irrigation areas in California by means of water spreading. The ground surface is flooded with clean

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Vice-president, Layne-New York Co., Inc., Camden, N. J.

FIG. 1

Preliminary Test on First Four Wells of Nine Installed at Schenectady, N. Y. Average Capacity per Well, 3500 Gallons per Minute

water from streams which percolates through the open formations and finally reaches the acquifers producing the supply.

Long Island, N. Y., is a notable example of installations recharging through return wells which are duplicates of supply wells without the pumping equipment. Experience indicates that a well will return approximately the same amount of water as produced from a supply in the same formation if the water is clean and if the return well is of equal construction. It requires a fully developed gravel wall well to minimize the friction to a point that the water will re-enter the aquifers from which it was withdrawn. There is now an established policy on Long Island that an industry must provide for the return of unconsumed water to the formations to obtain permission for a new well.

Principal Ground Water Areas (1)

It was estimated as long ago as 1930 that approximately 35 billion gallons per day were pumped for irrigation in the State of California principally from sand and gravel formations in the valley fill. This represented roughly an increase of 100% over the records of 1920. In other western mountain states the estimated production was about 400 million gallons per day. During the drought years of 1934 and 1935 the Utah Emergency Drought Relief Administration sponsored the drilling and rehabilitation of about 400 well units with a total capacity of around 120 million gallons per day. Pumpage of ground water has greatly increased in this area since that time.

In the states comprising the Great Plains area east of the Rocky Mountains the unconsolidated beds of sand and gravel and the broad valleys of the principal streams constitute immense ground water reservoirs from which domestic and stock supplies are produced.

Extensive supplies for industrial and domestic use are produced from the Mississippi embayment extending over western Alabama into Texas and as far north as Minnesota (*2*), also from the great coastal plains along the Atlantic and Gulf coasts, and from the unconsolidated formations in Louisiana, Oklahoma, and Arkansas. Ground water in quantity is available in many other sections of the country and it is obvious that it constitutes one of the principal sources of water supply for all purposes.

Municipal Well Systems

Some of the larger well systems, municipally and privately owned, delivering domestic supply, are the following: Houston, Tex., population 400,000; Savannah, Ga., population 96,000; Camden, N. J., population 120,000; Jamaica, Long Island serving over 400,000 people; Schenectady, N. Y., population 90,000; El Paso, Tex., population 100,000; London, Ont., population 85,000.

The Jamaica system consists of 45 well units located around the city, all of the Layne gravel wall type, with a total combined capacity of 70 million gallons per day which is twice their average daily demand. The wells draw from four separate aquifers the shallowest 60 feet in depth and the deepest 700 feet. The water is pumped direct into the distribution system by high pressure deep well pumps from thirty well units and fifteen pump into surface reservoirs with a combined capacity of 13 million gallons and repumped into the system.

The Schenectady system, (see Fig. 1) located along the Mohawk River, includes nine gravel wall wells spaced on 50 foot centers average depth 65 feet, outer casing 24 inches, inner casing and screen 18 inches; each well with a capacity of 3500 gallons per minute or a total combined capacity of 31,500 gallons per minute equivalent to 45 million gallons per day; average static level 18 feet; average drawdown 4.5 feet. Average specific capacity per foot 778 gallons, which is an amazing record. This system was installed in 1942-1943 to meet a serious deficiency in water supply.

The Camden well system of thirty units, all of the gravel wall type, provides the entire source of supply for the city which has no storage capacity. In the city proper twelve well stations deliver direct to the mains and the balance are in three well fields at Delair, N. J., about 6 miles distant and connected to the city by two large mains. Two large industrial consumers are the Campbell Soup Company, and the R. C. A. Victor Division of Radio Corporation, the former with a maximum peak demand upwards of 15 million gallons per day for periods during the months of August and September and the latter user of considerable cold water for record manufacture. The average temperature of the city supply in the mains is under 60° F. Table I gives the record of a 15 year period of operation of the Camden system:

FIG. 2

Union Bag Company, Savannah, Ga. This Well Shows the Flow of 3300 to 3500 Gallons per Minute. The Well Is 18 Inches in Diameter to a Depth of Approximately 800 Feet and Is Through Consolidated Formation to a Depth of Approximately 250 Feet. The Balance Is In An Open Hole Through the Ocola Limestone Formation.

TABLE I

Total Pumpage in 1000 gal.	Av. Power, kw.hr./ 1000 gal.	Av. Cost, cents/ kw.hr.	Av. Power Cost/ kw.hr., cents	Av. Repair Cost/ 1000 gal., cents
74,097,292	0.972	1.57	1.53	0.04

Ground Water Supply for Chemical and Paper Industry

The uses of ground water by all phases of the chemical industry for cooling and various processes are so widespread and numerous that no attempt has been made to present statistics in this field. However, seggregation to some extent, of what has been done by the Layne organization (prior to 1941), countrywide, in the paper industry is given in Tables II and III.

TABLE II

Company	Units Installed, number	Total Million Gallons per Day
Layne Atlantic Co.	23	82.0
Layne Arkansas Co.	20	13.6
Layne Central Co.	77	84.3
Layne Louisiana Co.	50	59.2
Layne New York Co.	11	5.8
Layne Northwest Co.	18	16.0
Layne Northern Co.	13	25.9
Layne Ohio Co.	59	76.0
Layne Texas Co.	8	22.0
Total	279	384.8

Typical installations from the above table are:

TABLE III

Industry	Units Installed, number	Total Million Gallons per Day
Union Bag & Paper Co., Savannah, Ga... (see Fig. 2)	3	13.0
Brunswick Pulp & Paper Co., Brunswick, Ga.	2	12.0
Crossett Paper Co., Crossett, Ark.	10	8.6
Southern Kraft Corp., Mobile, Ala.	9	8.6
St. Joe Paper Co., Port St. Joe, Fla.	3	14.3
Hollingsworth & Whitney Co., Mobile, Ala.	25	25.0
Brown Paper Co., Monroe, La.	9	12.0
Southern Kraft Corp., Bastrop and Springhill, Ala.	33	35.0
Advance Bag & Paper Co., Hodge, La.	8	11.4
Badger Paper Mills, Inc., Peshtigo, Wis.	2	2.0
Thilmany Pulp & Paper Co., Kaukauna, Wis.	1	2.0
Northern Paper Mills, Green Bay, Wis...	1	1.0
Fort Wayne Corrugated Paper Co., Hartford City, Ind.	3	8.6
Ball Bros. Co., Noblesville, Ind.	3	5.7
Terre Haute Paper Co., Terre Haute, Ind.	3	5.7
Mead Corp., Chillicothe, Ohio.	6	15.0
Champion Paper & Fibre Co., Hamilton, Ohio	6	10.0
Ohio Boxboard Co., Rittman, Ohio.	4	6.0
Champion Paper & Fibre Co., Houston, Texas	8	22.0
Peter J. Schweitzer Co., Spottswood, N. J.	5	4.0
National Folding Box Co., New Haven, Conn.	5	2.0

Construction of Well Water Systems

A description of some of the features of well construction and pumping equipment should be of interest in explanation of the methods employed to develop a ground water supply and make it available for practical use. It will necessarily have to be brief and incomplete as this in itself is a broad subject.

Guaranteed Form of Contract

The guaranteed form of contract for a well water system has been an important contribution to the stability of the industry. It centralizes the full responsibility for the desired result with the drilling contractor wherein he must produce a guaranteed minimum of capacity for the duration of a full year to fulfill his contract obligations. This imposes on the contractor the necessity for building up a responsible personnel experienced in well construction and awake to constantly improved methods and processes with adequate engineering knowledge of geology and hydrology. It is a great improvement over the old method of drilling so many feet of hole at a price per foot, with the purchaser holding the bag on the results. The pumping equipment should be included in the contract so there will be no division of responsibility in the installation of the complete unit and no opportunity for buck passing between the driller and the pump manufacturer.

Test Wells

Test investigation is almost always necessary to determine a log of the formations at the site and the quality of water available, preliminary to the permanent well construction. Cable tool drilling rigs are practicable down to 150 feet but are slow and expensive in excess of this depth. A limitation in the accuracy of formation samples by this method is the fact that frequently portions of upper formations are driven down into lower formations. Rotary equipment may require more time to place and set up but it can drill a hole much faster. This method is inaccurate to some extent because of the washing out of some of the fines and the failure to float out all of the cuttings, particularly if coarse and heavy.

In shallow fields not in excess of 150 feet in depth it has been found that both cable tool and light rotary rigs can be used to great advantage and make possible an accurate and speedy survey. A light rotary rig with a two man crew drilling a 3-inch hole for formation only can complete a test hole and move to a new location in a few days and the area under investigation can be prospected by a series of such tests. The most promising locations are then checked by construction of 6- or 8-inch wells by cable tool rig, placing temporary casing and screen and setting deep well turbine test pump, followed by sufficient pumping to secure water samples and to determine all possible data on the hydrology of the field. Temporary casings may be installed in the 3-inch rotary test holes which then serve as gage holes for observation during the testing operations. Some of these can be used effectively as permanent gage holes for checking the operating conditions of the well field.

Where additional wells are to be installed in an

Fig. 3
Rotary Drilling Rig

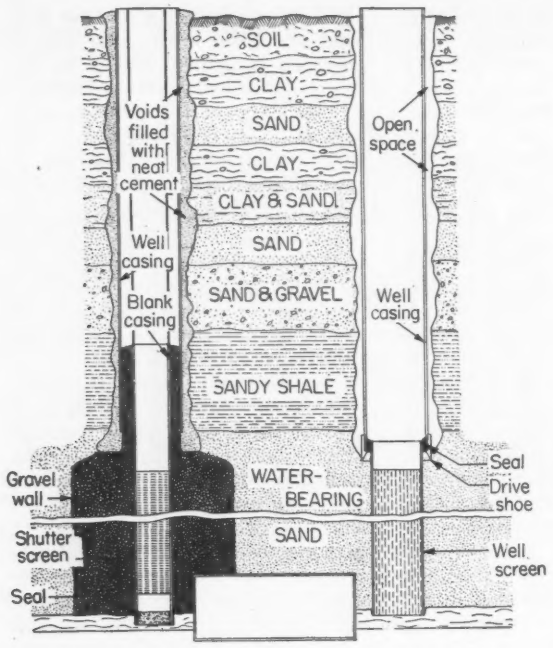

FIG. 4

Sectional Drawing Showing, at the Left, an Under-Reamed Gravel-Wall Well, with the Entire Casing Surrounded by an Unbroken Wall of Neat Cement Pumped into Place under High Pressure to Prevent Contamination, and at the Right, an Ordinary Ungraveled Well with an Uncemented Casing.

established field, rotary drilling equipment offers the advantage of utilizing the 8-inch pilot hole for a test well with a considerable saving in time and expense. After a log of the formations is secured, temporary casing and screen are placed and test pump installed for data and water samples. This can be accomplished with one setup of the big rig since test pump and all materials are removed after completion of test operations and work is then continued on the permanent well.

The test operations can make or break the well project and should be included in the contract for the entire project. A drilling contractor must use judgment in evaluating results of tests and should not have to father the responsibility of a contract unless the tests are his own. Separation of this very important part of the work might easily cause error and confusion to the detriment of a successful completion of the development.

WELL CONSTRUCTION

The three types of drilling rigs most commonly used in the construction of wells for water supply are (a) cable tool, (b) bailing, and (c) rotary.

Well casings are driven or jetted down with the cable tool rig which is generally used in the construction of smaller wells, from 6 up to 12 inch, single cased type.

The bailing rig is more adaptable for the construction of gravel wall wells in relatively shallow formations where thick strata of tough clay do not occur. It employs the use of two or three sets of working casings. The inner working casing, which should be equal in diameter to the diameter of the gravel wall, is bailed down through the aquifer after the friction is reduced by placing of the outer casings. The well is then built inside of this inner casing, placing screen and gravel wall and withdrawing the inner casing to a point above the top of the screen. It remains as the outer casing of the permanent well and all other working casings are removed and the space between the outer working casing and the outer well casing is then filled with neat cement. The well is developed to its maximum capacity by alternate agitation and pumping with work pump.

The rotary drilling rig (see Fig. 3) is most suitable for the construction of gravel wall wells of the under-reamed and cemented type by the rotary clay process. It is an adaptation of oil well drilling equipment to ground water development. The surface works usually include a 60 foot knockdown pipe derrick with a spread of 16 to 20 feet at the base, hoisting engine, chain driven rotary table which engages the drill rods and the mud pumps. A fish tail bit is attached to the hollow drill rods through which the drilling mud is pumped under adequate pressure. A mud wall is formed by the liquid clay entering the voids in the formations as the drill bit progresses, preventing caving until the permanent casing is installed. The return clay floats out the cuttings which are sampled at the surface and which determine the log of the formations. The clay hole is usually from 2 to 4 inches larger in diameter than the outer casing which extends to the approximate top of the aquifer to be developed.

After outer casing is in place, the aperature between it and the clay wall is filled with neat cement pumped in under high pressure through a cementing pipe which is carried to the bottom of the outer casing so that the cement is forced hydraulically upwards around the casing from bottom to top, replacing the drilling clay. On completion, when cement returns show at the surface the cement is permitted to set over a 24 to 48 hour period before progressing further with the well, thus insuring a tight and sanitary well free from infiltration of surface water.

Under-reaming and placing of the gravel wall is then accomplished by a mechanical under-reamer which expands its cutting bits under pressure and cuts a hole from 32 to 36 inches in diameter through the aquifer. The under-reamed walls are held from caving by the drilling mud until the inner casing and well screen are in place. Simultaneous washing of the screen area with placing of the gravel builds up the gravel wall to fill the cavity around the screen and the gravel is usually carried up between the casings to the approximate pumping level in the finished well. Development by agitation and pumping follows until maximum production has been established.

Silicon bronze screens are standard in corrosive waters and Armco iron screens are still used extensively in noncorrosive waters. Casing diameters range from 16 to 38 inches usually with welded horizontal joints. The most common screen diameters are from 10 to 24 inches. Where available, the best gravel to effectively hold back the sand is a washed and sized pea gravel, with grades from 3W to 5W in accordance with the conditions and character of the formation. Chlorination of the gravel before injection into the well is a worth while precaution.

An outstanding advantage of this type of construction (see Fig. 4) is the large filter area around the screen which permits free inflow at low velocity, a condition which prevents the entry of sand. In this type of screen the slots have wide openings and are not designed to hold out sand. Large specific capacities are obtained which are measured in gallons per foot of drawdown and are the indices of high

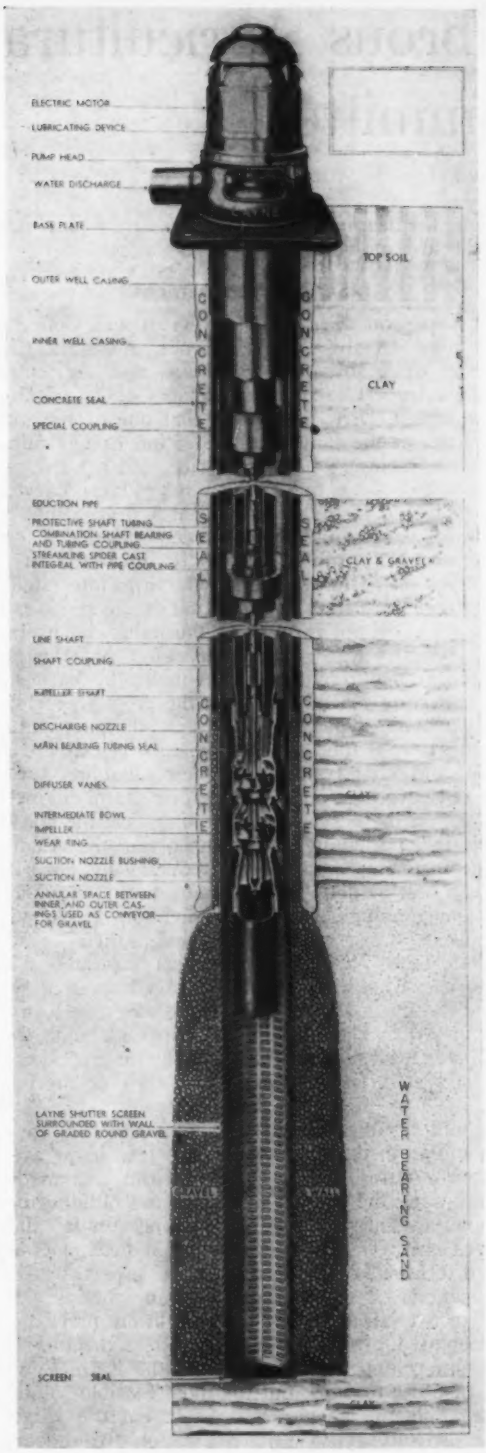

Fig. 5
Typical Deep Well Pump and Well Assembly

efficiency of producing wells. The large diameters used provide ample clearance for installation of the pump under good operating conditions. Wells of this type can be cleaned effectively and redeveloped after years of operation. A survey in July 1944 in the New York territory gave the following summary: 564,881 gallons per minute produced from 745 well units equal to an average production of 0.76 million gallons per day per well and a total combined production of 813.4 million gallons per day, which indicates the excellent performance of this type of construction.

Pumping Equipment

The static levels in most wells is below the limits of suction pumping and therefore the efficient use of water production from the completed well depends upon the installation of a vertical turbine deep well pump of good design and proper construction, manufactured by a reliable concern with a background of years of experience in this type of special equipment.

Today, most manufacturers recommend the top drive type with hollow shaft motor, the upper motor bearing being common to both pump and motor and carrying the full load. The pump head is installed on a small concrete foundation over the well and supports the pump setting consisting of column pipe with oil protective tubing and shaft, which in turn is connected to the pump bowl. The bowl is multistage and standard construction provides cast iron shells with bronze impellers and stainless steel impeller shaft. The bowl should be submerged below the tested pumping water level at rated capacity so as to operate under water, as intended.

The water lubricated type of pump is equipped with open pump shaft protected by monel metal sleeve at the bearings and depends upon water lubrication from the well, rather than from the solenoid lubricator in the pump head in the oil lubricated type, described above.

The use of the weatherproof type motor is quite general since it does not require elaborate housing. It may be protected from dust by a small removable cover with proper ventilation. Most municipal installations and a great many industries who install metering devices and keep records construct brick pump houses, approximately 12 by 12 by 12 feet, roof construction providing a removable hatch to facilitate removal of the pump for repairs, by means of a derrick to be mounted on top of the pump house.

Ground water supply is a big subject and covers a wide range of geology, hydrology, construction, and field practices. In the space alloted it has only been possible to very briefly describe some of the important phases. For those interested in the science of ground water engineering, we recommend two of the better known works on this subject, i. e. "Hydrology" by Dr. O. E. Meinzer and "Ground Water" by C. F. Tolman.

Literature Cited

1. Meinzer, Dr. O. E., The importance of ground water supply, *Water Works Eng.*, Aug. 17 and 31, 1938.
2. Schweitzer, R. R., Ground water resourses for industry, *Mfrs. Record*, May, 1938.

TAPPI Notes

Alexander W. Tait, formerly of the West Virginia Pulp & Paper Company, is now engineer for the International Paper Company, Palmer, N. Y.

Recent visitors to New York from abroad include: B. Bygden, technical manager, Anjala Paper Mills, Inkeroiven, Finland; Yrjo Tahtinen, technical manager, Kajaani Paper Mills, Kajaani, Finland; Astorre Mayer, President, Cartiera Vita Mayer & Company, Milan, Italy; Arthur G. Veiga, engineer, F. Johnsson & Cia, Rio de Janeiro, Brazil.

Stanislas Darblay is now the official corporate member representative of S. A. des Papeterias Darblay, 27 Rue des Pyramides, Paris, France.

Meeting of TAPPI Fibrous Agricultural Residues Committee*

By S. I. Aronovsky[1]

One of the purposes of this meeting was to acquaint the executives and managers of the strawboard industry with the scope, program, and accomplishments of the Fibrous Agricultural Residues Committee, and to obtain their approval, help, and backing in this work. A number of the top executives and managers of the industry attended this meeting and they joined quite fully in the informal discussions which took place.

This second annual meeting at Peoria was opened by Dr. S. I. Aronovsky, Chairman. After stating the purposes of the meeting, he introduced the members of the committee, the mill executives and guests from the Northern Regional Research Laboratory. Then he called on Dr. E. C. Lathrop, Acting Director of the Laboratory and Head of the Agricultural Residues Division, who welcomed the members and guests to the Laboratory.

Dr. Lathrop outlined the program and described the work of the Agricultural Residues Division, with particular reference to the pulp and paper work. He stressed the increasing importance of research to industry. He pointed out that although the strawboard industry has lagged in this respect, the presence of the mill executives at this meeting indicated that they are aware of this situation and are interested in cooperating in a research program. The Northern Laboratory will aid the strawboard industry, in any way that it can, in improving the industry's processes and products, with the ultimate goal of increasing industrial utilization of agricultural residues and thereby increasing farm income.

Mr. Sidney Frohman, President of the Hinde and Dauch Paper Company, Sandusky, Ohio, speaking on "Research and the Straw Paper Industry," gave a brief history of the manufacture of corrugating paper and the role played by straw. He described the development of pulp from extracted chestnut chips, kraft wood pulp, and waste paper as substitutes for straw pulp in corrugating. He stated that straw was still the main raw material used for corrugating paper, but that improvements in the methods of manufacture and in the product are necessary for straw to retain its place in this field. Mr. Frohman expressed the hope that the committee will solve some of the problems of the strawboard industry and he stated that the industry will cooperate in this effort.

Mr. R. G. Macdonald, Secretary of TAPPI, then spoke on "TAPPI and the Strawboard Industry." He gave a brief history of the Technical Association and described its organization and mode of operation. He discussed the scope of the various divisions of the association and their contributions to the war-time developments in packaging. The work of a large proportion of the TAPPI committees has a direct bearing on the strawboard industry. Mr. Macdonald stressed the values of TAPPI in promoting personal friendships and exchange of ideas and information among the men in the various units of the pulp, paper, and board industries.

Straw Procurement

A paper on "Straw Procurement and Collection" was presented by A. W. Turner, Assistant Chief, Bureau of Plant Industry, Soils, and Agricultural Engineering, U. S. Department of Agriculture, Washington, D. C. He stated that one of the major problems in the industrial utilization of agricultural residues, such as wheat, flax, rice, and oat straws, is how to get these bulky farm byproducts harvested and delivered to the paper mill at a price which will allow industry to use them in competition with other materials. Six groups are vitally interested in this problem: (1) the farmers, who are interested in lower cost harvesting of crops and of the residues for sale or use on the farm; (2) the industrial users of these residues e.g., strawboard mills; (3) the farm equipment manufacturers, who make the harvesting and collecting machinery; (4) the crop breeders, to develop better types of straw and other agricultural residues; (5) the technical men, to evaluate the straws and other residues for their suitability for the required purposes; and (6) the agricultural engineers, to work on the best and most economical methods of harvesting, packaging, and transporting the residues.

The farmer is interested in reducing his costs and this can best be done by more and improved machinery. The combine harvester-thresher was developed as a result of farm requirements and is here to stay. In 1945, about 75% of all the wheat harvested in the U. S. was combined, and 22% was harvested with binder threshers. About 95% of the wheat in Kansas, 55% in North Dakota, and 91% in Oklahoma were combined. A large proportion of the rice crop is combine harvested. In the case of flax, 66% of the Iowa crop, 71% of the North Dakota crop, and 54% of the South Dakota crop were combined. The use of the combine to date has resulted in less straw available for industry, but this situation can be remedied by improving the present machines and building new machinery. The farmer will cooperate in these changes only if sufficient financial inducements are offered to him. Mr. Turner indicated several possible modifications of combining the grain, obtaining the straw in a relatively chaff-free condition, and baling the dechaffed product. He advocated a meeting between this committee and one from the Farm Equipment Institute to work out the most feasible solution to this problem. He also suggested that the various State Agricultural Experiment Stations of the area should be brought into these discussions to stimulate local interest and to increase the number of investigators working on this problem.

A spirited discussion in which many took part followed Mr. Turner's address. The deficiencies and advantages of the combine method of harvesting grain and straw were pointed out. With a combine, the farmer obtains a higher yield of grain per acre and a higher price for the grain. Too much of the present price of straw delivered to the mill goes to

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transportation, leaving very little for the farmer in some cases. Plowing the straw under results in partial denitrification of the soil. A better practice is to plow under the last crop of clover, which is more readily decomposed by the soil and does not denitrify the latter. Weeds in the straw can be eliminated by clean farm practice. The new chemical, 2, 4-D may prove of value in killing leafy weeds. Obtaining good combined straw is different from older methods used with stack straw; it must be considered as a new problem, not related to the older practice. A program of educating the farmer will have to be worked out to show him the benefits to himself of cooperating with the strawboard industry and with the farm equipment manufacturers.

Committee Reports

Dr. Aronovsky gave a brief history of the Fibrous Agricultural Residues Committee and outlined its organization, projects, and accomplishments to date. He praised the committee members for their cooperation and for the considerable progress made by them in the relatively short time that they worked on these projects. He then called for a report from the subcommittee on Procurement, Storage, and Preservation. Mr. H. M. Blandin, Chairman of this subcommittee, reported that considerable progress had been made in the development of an instrument to measure directly the moisture content of straw in bales. He and one of his subcommittee members brought with them a Hart moisture meter and a Delmhorst moisture detector for demonstration. Both of these instruments are based on electrical conductivity. The Delmhorst instrument uses a single needle with the two electrode surfaces, near the tip, separated by an insulator. It is designed to measure moisture contents between 7 and 50% with an accuracy of ±2%. The moisture percentage is read directly on the instrument dial. The Hart instrument has two separate electrodes which may be inserted in the ends or opposite sides of a bale and records the resistance between the electrodes. The results with both instruments were in fairly good agreement when tested on a bale of straw. However, some unexplained variations in readings have been noted, particularly in bales of nonuniform density.

The rapid progress made on this project may be partly explained by the fact that the instrument manufacturers were more receptive to the request of this committee which represents an industry, for developing a moisture tester, than if this request were made by a single company. It was pointed out, that if these instruments are suitable for baled straw, they will find a ready market among other users of baled fibrous materials, particularly the hay industry.

Mr. Blandin then brought up the subject of specifications of the straw desired by the strawboard industry. It was decided that only those specifications which will guide the harvesting and baling equipment manufacturers in designing the necessary equipment need be developed at this meeting. After some discussion the following were agreed upon:

Size of bale	15 × 18 × 42 inches
Weight of bale	80 pounds
Chaff in straw	Under 5%
Height of stubble after cutting or mowing	3 inches
Bale ties	Wire or twine
Moisture in straw	Same as at harvest time

These are the main specifications which will be submitted to the strawboard mills for approval prior to presenting them to a committee of the Farm Equipment Institute. A definite moisture content cannot be included in these specifications since this factor cannot be controlled by the equipment manufacturer. However, it is assumed that straw is dry at the time of grain harvesting (about 16 to 18% moisture) and that is when the straw should be baled. The moisture content of air-dry straw is about 14%. Straw with moisture below the fiber saturation point (about 20%) will not tend to rot or mildew readily. This group had no particular preference of wire over twine, providing the latter will hold the bale in shape and will weather satisfactorily and withstand attack by animals.

In reporting for the subcommittee on Raw Materials Classification, Dr. Aronovsky stated that the prevailing varieties of straw from the soft winter wheat, hard winter wheat, hard spring wheat, durum wheat, and white Western wheat areas have been obtained. They are being analyzed for their physical characteristics such as thickness of wall, stiffness, distance between nodes, et cetera. These data will be correlated with chemical analyses of these straws and with their pulping and papermaking characteristics. Preliminary pulping work at the Northern Regional Research Laboratory has shown that various agricultural residues tend to align themselves in distinct groups; on the basis of yield and ease of delignification; for example, wheat, oat, rye, and barley straws fall into one group with similar characteristics, while hemp hurds and flax shives form another apparently distinct group. An empirical evaluation method is being developed for determining the pulping characteristics of various agricultural residues. A new development involves the use of an attrition-type refiner in preparing a fiber from straw which approaches kraft wood pulp in some respects.

No reports were made for the subcommittees on Pulping and on Board and Paper Manufacture.

N. F. Wilson, Chairman of the subcommittee on Testing, gave a preliminary report on testing strawboard samples from nine cooperating mills. The samples were "run of mine" and not specially selected. These tests were made independently by the Northern Laboratory, the Institute of Paper Chemistry, the Container Corporation of America, and the Alton Boxboard Company. These tests by the different laboratories showed good agreement, indicating the validity of the test methods used. The variation of the test characteristics in the different samples is mainly because of the fact that under present operating conditions it is difficult to obtain a continuously uniform product.

The committee is making plans to prepare a monograph on the manufacture and properties of strawboard. The work of this project will be divided in general accordance with the subcommittee structure of the committee.

In the afternoon the group was taken on a tour of the Northern Regional Research Laboratory. They also observed the preparation of the long, thin straw fibers by means of a Bauer refiner.

Dr. K. B. Raper of the Fermentation Division of the Northern Laboratory gave a very interesting illustrative talk on moulds and fungi.

M. F. Knack accepted the chairmanship of the Board and Paper Manufacture subcommittee, formerly held by F. B. Grunwald. H. C. Koch resigned from the committee. W. W. Galloway was transferred from active participation to consultant basis. New appointments were B. F. Stehl and C. Johnston. Mr. Stahl accepted the chairmanship of the subcommittee on Pulping, which was relinquished by R. A. Diehm.

Bleaching Aspen Neutral Sulphite Semichemical Pulp With Sodium Peroxide*

By R. M. Kingsbury[1], F. A. Simmonds[1], R. T. Mills[2] and F. L. Fennell[2]

Abstract

In experiments at the Forest Products Laboratory, an aspen neutral sulphite semichemical pulp of 72% yield, with an unbleached brightness of 57 and containing 11% of lignin, was bleached by means of a one-stage sodium peroxide process to a maximum brightness of 74. The study comprised chiefly a determination of the effects of variations in the amount of sodium peroxide used for bleaching and in the initial alkalinity of the bleaching solution, although some data were obtained on the effect of variations in temperature and consistency.

With sodium peroxide at 52° C. and 12% consistency, it was found that, by using 6% sodium silicate and not more than 0.1% magnesium sulphate, and by adjusting the pH to 5 with sulphurous acid at the end of the bleach, brightness values of 70.5, 72.5, and 74 were attained with 2, 3, and 4%, respectively, of the peroxide. Reaction time ranged from 5 to 7 hours. Shrinkage did not exceed 3.5%. There was a small but definite increase in pulp strength.

In the bleaching of semichemical pulp it is obviously desirable to sacrifice as little as possible of the high yield that is characteristic of the unbleached pulps, yet produce a bleached pulp having properties that will meet the requirements of a specified grade of paper. In certain book papers, for example, it is possible to use bleached pulps not particularly high in brightness. It is reasonable to expect that, for commercially feasible bleaching, the maximum yield of bleached pulp is to be obtained in the lower brightness range.

The one-stage sodium peroxide process *(3)*, as used commercially for bleaching groundwood pulps *(1, 7)*, increases the brightness of these pulps appreciably with but little shrinkage and was, therefore, thought suitable for trial on semichemical pulp. Results of experiments with this method in the bleaching of aspen neutral sulphite semichemical pulp afford information on the influence on bleached pulp brightness of varying amounts of peroxide, the initial degree of alkalinity, consistency, temperature, iron in water, age of pulp, as well as rate of brightness development and yield and strength of bleached pulp.

The Unbleached Pulps

Data on the nature of the three aspen neutral sulphite semichemical pulps supplied for the bleaching work are listed in Table I. Digestion conditions were those commonly used at the Forest Products Laboratory for a neutral sulphite semichemical pulp and the softened chips were fiberized with a double-disk attrition mill. The pulp No. P-2234-2235 was made commercially and the other two were made at the Forest Products Laboratory. Pulp No. 5115-N was used in determining the influence of variations in bleaching conditions.

TABLE I.—DATA ON UNBLEACHED ASPEN NEUTRAL SULPHITE MECHANICAL PULPS

Pulp No.	Cut of plate used in screening, No.	Yield (approximate), %	Lignin, %	Total pentosans, %	Ash, %	Freeness: Schopper-Riegler, ml.	Freeness: Canadian Standard, ml.	Brightness [1]	Age when bleached
5115-N	10	72	10.4	17.9	1.2	815	600	60.3	Series extended over a 2-week period
I-5134-N	8	76	11.2	16.9	1.4	710	445	43.4	1 week
P-2234, 2235	10	..	10.0	18.0	0.8	720	...	46.5	3 months

[1] Measured with a Hunter reflectometer calibrated according to TAPPI Standard T 217 sm-42. Test sheets were formed from pulp suspensions made with tap water having a pH value of 5.

These pulps, screened as shown in Table I, were dewatered on a wet machine and kept in the moist condition until bleached.

Procedures

The sodium peroxide bleaching solutions were prepared by adding the following chemicals, in the order named, to about 900 ml. of water while thorough agitation was maintained: 0.5 gram of magnesium sulphate, 17.1 to 60 grams of sodium silicate (to give 6% by weight based on pulp), and 20 grams of sodium peroxide.

These solutions were then diluted to a volume of 1 liter with tap water containing not over 0.1 p. p. m. of iron, with one exception. In this exception (bleach 874), the bleaching solution was prepared with iron-free water obtained by passing tap water through an iron-removing mineral.

The quantity of pulp used in the beaker-scale bleaches was 120 grams on the moisture-free basis. The variation in the concentration of silicate in the bleaching solution needed to maintain 6% of silicate by weight based on the weight of the pulp when the percentage of peroxide applied to the pulp was varied is shown in Table II. The titrated alkalinity of these solutions, expressed as sodium oxide, and the volume required per bleach are also given in this table.

The bleaching conditions used are given in Table III. When the alkalinity of the bleaching solution was the factor being studied, the adjustment was made by adding either sulphuric acid (specific gravity 1.84) or sodium hydroxide to the stock solution. Bleaching consistency and temperature were generally 12% and 52° C.

Samples at a consistency of about 18% were heated for bleaching trials to 71° C. prior to the addition of the bleaching solution. The volume of bleaching solution had previously been adjusted to that required for the final desired bleaching consistency by addition of water.

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[2] Peroxygen Products Division, E. I. du Pont de Nemours and Company, Inc., Niagara Falls, N. Y.

[3] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

TABLE II.—COMPOSITION OF THE SODIUM PEROXIDE BLEACHING SOLUTIONS AND SOLUTION VOLUME USED FOR 120 GRAMS OF PULP

Sodium Peroxide Added to Pulp,[1] %	Solution Composition				Volume of Solution Used for 120 Grams of Pulp, ml.
	Magnesium Sulphate, g./l.	Sodium Silicate,[2] g./l.	Sodium Peroxide,[3] g./l.	Alkalinity as Na_2O,[4] g./l.	
2	0.5	60.0	20.0	20.6	120.0
3	0.5	40.0	20.0	18.8	180.0
4	0.5	30.0	20.0	18.0	240.0
5	0.5	24.0	20.0	17.8	300.0
7	0.5	17.1	20.0	17.4	420.0

[1] Based on weight of pulp.
[2] Composition: 29% SiO_2, 8.9% Na_2O, 41.5° B. at 60° F.
[3] Concentration verified by titration with standard sodium thiosulphate solution using starch as the indicator.
[4] Determined by titration with standard sulphuric acid solution using phenol red as the indicator.

The bleaching solution was mixed with the preheated pulp by hand for 5 minutes, during which time the temperature decreased to about 43° C. These samples were then placed in a water bath maintained at a temperature of 52° C. for completion of the reaction.

Samples of the reaction mixture were taken at intervals of 1.5, 3, 5, and 7 hours for determination of residual peroxide and alkali and for the preparation of test sheets for brightness measurement. The samples for preparation of test sheets were diluted to about 2% consistency and the pH values of the mixtures adjusted to about 5.0 with sulphur dioxide, the purpose of which was to neutralize the residual alkali and to reduce the residual peroxide. The test sheets were formed at a consistency of about 0.2% using dilution water acidified to a pH of 5.0 with sulphuric acid.

Test sheets of the unbleached pulps were formed from suspensions acidified to a pH of 5.0 with sulphuric acid and dried under the conditions used for the bleached pulps.

Brightness of the test sheets was measured on the felt side with a Hunter reflectometer calibrated in accordance with TAPPI Standard T 217 sm-42.

Influence of Variations in Bleaching Conditions on Brightness and Reaction Rate

Amount of Peroxide at Optimum Alkalinity and Maximum Reaction Time

Figure 1 shows both the increase in maximum brightness at the optimum alkalinity of the bleaching solution and the reaction time at which this brightness occurred, as the amount of sodium peroxide was increased to 7% in bleaching the aspen pulp No. 5115-N.

Substantial gains in brightness are obtained with amounts of peroxide up to 4% (which resulted in a brightness of 74) but further gains with greater amounts of peroxide appear too small to be justified on the basis of cost. Whether 4% is within economical limits is a question that must be considered in each instance of possible application.

The maximum reaction time varied from 5 to 7.5 hours.

Alkalinity of the Bleaching Solution

The influence of the alkalinity of the bleaching solution on the rate and degree of brightness it developed is shown in Table III and Fig. 2. Alkalinity is expressed as per cent sodium oxide based on the weight of pulp.

The most efficient bleaching action of the various percentages of peroxide used, as measured by the increase in brightness and the time required, occurred at alkalinity values of 2.0 to 3.6%. At alkalinity values above this range, the rate of reaction increased but, because of the lower stability of the peroxide, less increase in brightness occurred. At alkalinity values

TABLE III.—CONDITIONS USED IN BLEACHING ASPEN NEUTRAL SULPHITE SEMICHEMICAL PULPS WITH SODIUM PEROXIDE, AND RESULTANT BRIGHTNESS VALUES

Pulp No.	Age When Bleached, days	Bleach No.	Chemicals Applied					Sodium Peroxide Consumed,[4] %	Alkalinity[1] of the Bleaching Solution,[4] %	Alkalinity[1] at End of Bleach,[4] %	Consistency, %	Temperature, °C.	Reaction Time, hr.	Brightness[2]		
			Sodium Peroxide,[4] %	Sodium Silicate,[4] %	Magnesium Sulphate,[4] %	Acid (Sulphuric),[4] %	Sodium Hydroxide,[4] %							Average Reading, points	Gain, points	Recession,[3] points
5115-N	6	873	2.0	6.0	0.05	..	1.3	1.8	2.9	2.8	12	52	3	69.7	9.4	2.8
5115-N	6	872	2.0	6.0	0.05	..	0.7	2.0	2.5	2.4	12	52	5	70.0	9.7	2.0
5115-N	6	871	2.0	6.0	0.05	..	..	1.9	2.0	1.7	12	52	7	70.0	9.7	2.0
5115-N	2	860	2.0	6.0	0.05	..	..	1.9	2.1	1.7	12	52	7	70.5	10.2	2.7
5115-N	2	861	2.0	6.0	0.05	1.0	..	1.5	1.4	1.0	12	52	7	68.3	8.0	1.1
5115-N	2	862	2.0	6.0	0.05	1.6	..	1.2	1.0	0.6	12	52	7	68.2	7.9	1.7
5115-N	1	855	3.0	6.0	0.075	..	..	2.7	2.8	2.6	12	52	7.5	72.5	12.2	2.6
5115-N	1	856	3.0	6.0	0.075	1.0	..	2.6	2.2	1.9	12	52	7.5	71.7	11.4	2.9
5115-N	1	857	3.0	6.0	0.075	1.5	..	2.5	2.0	1.5	12	52	7.5	71.5	11.2	2.5
5115-N	1	858	3.0	6.0	0.075	2.25	..	1.6	1.5	0.8	12	52	7.5	71.0	10.7	3.5
5115-N	1	859	3.0	6.0	0.075	3.0	..	0.8	1.0	0.4	12	52	7.5	68.8	8.5	2.8
5115-N	1	851	4.0	6.0	0.1	..	..	2.9	3.6	3.1	12	52	5	74.1	13.8	2.0
5115-N	1	852	4.0	6.0	0.1	2.0	..	3.2	2.4	1.6	12	52	7.5	74.1	13.8	2.5
5115-N	1	853	4.0	6.0	0.1	3.0	..	2.6	1.8	1.1	12	52	7.5	73.4	13.1	2.5
5115-N	1	854	4.0	6.0	0.1	4.3	..	0.8	1.0	0.4	12	52	5	71.4	11.1	2.6
5115-N	2	863	5.0	6.0	0.125	..	..	4.5	4.4	3.7	12	52	5	70.2	9.9	0.3
5115-N	2	864	5.0	6.0	0.125	2.0	..	4.3	3.2	2.9	12	52	7	73.7	13.4	2.0
5115-N	2	865	5.0	6.0	0.125	3.5	..	3.9	2.3	1.8	12	52	5	72.6	12.3	2.4
5115-N	2	866	5.0	6.0	0.125	5.0	..	2.8	1.3	0.6	12	52	7	70.3	10.0	2.3
5115-N	2	867	7.0	6.0	0.175	2.0	..	6.8	6.1	3.8	12	52	5	73.2	12.9	2.5
5115-N	2	868	7.0	6.0	0.175	4.0	..	6.8	3.6	3.3	12	52	7	74.6	14.3	3.4
5115-N	2	869	7.0	6.0	0.175	5.0	..	6.9	2.9	2.3	12	52	7	75.0	14.7	2.6
5115-N	2	870	7.0	6.0	0.175	6.0	..	2.9	2.3	1.1	12	52	7	74.1	13.8	2.9
5115-N	4	875	2.0	6.0	0.05	..	..	1.9	2.0	1.6	5	52	7	68.2	7.9	2.7
5115-N	4	876	2.0	6.0	0.05	..	..	1.4	2.0	1.5	8	52	7	69.1	8.8	3.1
5115-N	4	877	2.0	6.0	0.05	..	..	1.9	2.0	1.7	12	52	7	70.0	9.7	..
5115-N	4	878	2.0	6.0	0.05	..	..	2.0	2.0	1.7	15	52	7	70.3	10.0	2.7
5115-N	4	874	2.0	6.0	0.05	..	..	1.9	2.0	1.7	12	52	7	72.0	11.7	3.0
5115-N	4	887	2.0	6.0	0.05	..	..	1.1	2.0	2.0	12	32	7	69.0	8.7	3.6
5115-N	4	[5] 881	2.0	6.0	0.05	..	..	1.9	2.0	1.7	12	52	7	70.2	9.9	..
2234-35	90	882	3.0	6.0	0.075	..	..	2.7	2.8	2.2	12	52	7	66.1	19.6	2.5
5115-N	35	888	3.0	6.0	0.075	..	..	2.4	3.0	2.1	12	50	6	69.8	12.7	..
5115-N	35	892	3.0	6.0	0.075	..	..	2.4	3.0	2.0	12	50	6	71.8	14.7	..
I-5134-N	7	895	3.0	6.0	0.075	..	..	2.9	2.8	1.5	10	60	5	60.6	17.2	..

[1] Expressed as Na_2O.
[2] Measured with a Hunter reflectometer calibrated in accordance with TAPPI Standard T 217 sm-42.
[3] Decrease in brightness after storing 6 months at room temperature and shielded from light.
[4] Based on the weight of pulp, moisture-free basis.
[5] Bleached pulp from bleach No. 871 after three washes, 1 liter each, with iron-free water.

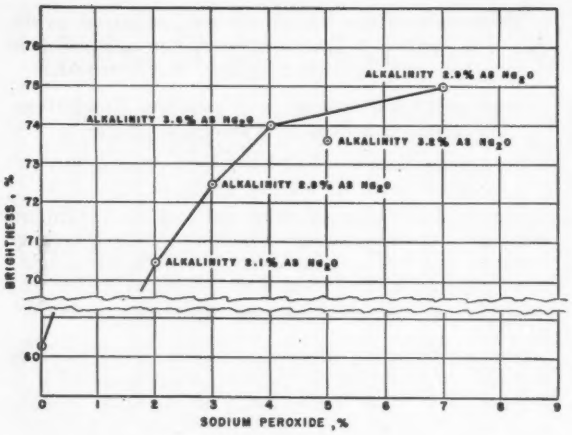

FIG. 1

Relation between Brightness and Amount of Sodium Peroxide Used at Optimum Alkalinity of Bleaching Solution (Pulp No. 5115N)

below 2%, the reaction was slower and the gain in brightness was lower; or, for the same increase in brightness, a longer bleaching time was required.

The alkalinity did not fall below the optimum range except in the bleaches made with 2% peroxide.

Solutions for bleaching with 2 to 4% peroxide had alkalinities within the desired range without addition of acid or alkali. However, the solutions for bleaching with 5 and 7% peroxide were too highly alkaline and required an addition of 2 to 5% of concentrated sulphuric acid in order to neutralize part of the sodium peroxide and sodium silicate.

It has been reported that there is an optimum alkalinity for bleaching groundwood with sodium peroxide *(4)*, but the value is somewhat lower than the most desirable range found in this study for aspen neutral sulphite semichemical pulp.

The amounts of alkali remaining at the end of the reaction are recorded in Table III.

Consistency During Bleaching

Over a consistency range of 5 to 15%, using 2% sodium peroxide, the highest brightness was attained at the highest consistency, as shown by bleaches 875 to 878 (Table III). It is to be expected that this relation will obtain for other amounts of peroxide.

Temperature

The results of bleaches 887 and 871, in which the temperatures were 32 and 52° C., respectively, afford merely an indication that utilization of the peroxide is more efficient at the higher temperature. It is believed that still higher temperatures would result in further increase in efficiency without injury to the pulp.

Iron in Process Water

It has been shown that iron, as well as other heavy metals, catalyzes the decomposition of sodium peroxide *(5)* and also that iron adsorbed by pulp during bleaching affects brightness adversely *(2)*.

A comparison of the results of bleaches 871 and 874 shows that dilution of the pulp with iron-free water instead of tap water containing not over 0.1 p. p. m. of iron resulted in an increase of about 2 points in the brightness of the bleached pulp. No appreciable advantage was obtained by washing the bleached pulp with iron-free water (bleach 881).

Age of Pulp

The bleaching of mechanical pulp with sodium peroxide usually becomes more difficult as the pulp ages because of its tendency to darken and because of the growth of types of bacteria capable of decomposing

TABLE IV.—EFFECT OF BLEACHING ON THE STRENGTH AND CERTAIN CHEMICAL COMPONENTS OF PULP NO. 5115-N

Bleaching Conditions [1]										Strength Development [2]									
												Bursting		Tearing		Tensile		
Bleach No.	Sodium Peroxide, [3] %	Sodium Silicate, [3] %	Magnesium Sulphate, [3] %	Consistency, %	Temperature, ° C.	Time, hr.	Lignin, [3] %	Total Pentosans, [3] %	Ash, [3] %	Beating Time, min.	Freeness (S.-R.), ml.	Points	Pts./lb./ream	Grams	G./lb./ream	Number of Double Folds	Lb. per in. width	P.s.i.	Density, g. per ml.
Unbl'd	..	..	....	..	..	..	10.4	17.9	0.9	...	815	26.1	0.45	51.2	0.91	12	18.1	3,200	0.53
										40	650	47.1	0.87	37.6	0.70	106	32.3	7,410	0.70
										60	510	61.7	1.12	32.4	0.59	114	35.8	8,980	0.76
										80	370	67.4	1.22	28.8	0.52	194	36.0	10,180	0.84
										100	260	70.1	1.24	27.2	0.48	263	40.8	12,640	0.94
											[4] 550	[4] 59.0	[4] 1.06	[4] 34.0	[4] 0.61	[4] 135	[4] 35.5	[4] 8,800	[4] 0.78
[5] 871	2	6	0.05	12	52	7	10.2	...	1.0	...	...	23.2	0.49	53.2	1.15	21	18.6	3,220	...
[5] 885	3	6	0.075	12	52	5	10.2	17.1	1.6	...	825	29.7	0.55	59.6	1.10	27	18.7	3,390	0.55
										40	655	49.0	0.95	42.0	0.81	201	32.0	8,110	0.77
										60	540	56.1	1.08	39.6	0.77	194	35.8	9,640	0.82
										80	395	56.9	1.12	31.2	0.61	291	38.5	11,180	0.88
										100	285	60.2	1.21	29.6	0.59	279	43.2	13,130	0.92
											[4] 550	[4] 55.5	[4] 1.04	[4] 36.5	[4] 0.72	[4] 250	[4] 36.5	[4] 9,600	[4] 0.82
[6] 886	3	6	0.075	12	52	5	10.7	17.8	1.7	...	810	33.8	0.58	61.6	1.08	36	20.0	3,620	0.55
										40	615	56.5	1.01	46.0	0.84	172	32.1	8,410	0.80
										60	480	59.8	1.08	46.8	0.85	231	36.8	10,080	0.83
										80	330	62.9	1.13	44.4	0.80	245	38.9	11,340	0.88
										100	235	72.2	1.28	39.6	0.71	315	41.6	12,540	0.92
											[4] 550	[4] 59.0	[4] 1.06	[4] 4.75	[4] 0.89	[4] 210	[4] 34.5	[4] 9,400	[4] 0.80
[6] 891	4	6	0.1	12	52	6	10.4	17.7	1.8	...	800	33.8	0.60	60.4	1.09	68	20.8	3,800	0.56
										40	640	44.7	0.80	51.2	0.96	250	32.4	7,710	0.72
										60	550	54.1	0.94	48.4	0.88	262	35.5	8,820	0.75
										80	480	61.1	1.13	44.4	0.83	296	37.0	9,680	0.80
										100	385	65.2	1.18	43.2	0.80	264	35.3	9,680	0.83
										120	300	67.2	1.20	39.6	0.72	343	38.7	11,130	0.88
											[4] 550	[4] 57.5	[4] 0.96	[4] 47.5	[4] 0.89	[4] 270	[4] 35.5	[4] 8,800	[4] 0.76

[1] At the end of the bleaching, the mixture was diluted to about 3% consistency and the pH value adjusted to 4.5 to 5 with sulphurous acid.
[2] Beating treatment according to TAPPI Standard T 200 m-43. Ream size 25×40—500. Test sheets conditioned at 50% relative humidity and 75° F.
[3] Based on weight of unbleached pulp, moisture-free basis.
[4] Values interpolated from curves.
[5] The bleached pulps were tested without previous filtration or washing.
[6] The bleached pulp was washed three times by dilution to about 1% consistency with hot softened water followed by filtration.

the peroxide *(6)*. Consequently, some data were taken on the effect of aging on the bleaching of the aspen neutral sulphite semichemical pulp.

The results of bleaches 860 and 871 show that there was no effect of aging on pulp No. 5115-N over a period of 4 days and those of bleaches 855, 888, and 892 show no adverse effect at the end of 5 weeks, since the difference in brightness between duplicate bleaches 888 and 892 does not exceed a reasonable tolerance for experimental variation.

Although the brightness of the unbleached pulp at the end of 5 weeks receded 3 points and the bacteria count increased from an initial value of 10,000 per gram to 5,000,000, both factors were apparently without effect in the bleaching of this pulp.

A comparison of the increase in brightness for pulps 5115-N, I-5134N, and 2234-35 (Table I) under comparable bleaching conditions but at respective ages of 1 day, 1 week, and 3 months (bleaches 855, 882, 895) shows that the greatest increase, about 20 points, was obtained with the oldest pulp. This pulp had been stored at room temperature in a closed container but was washed thoroughly with cold water prior to bleaching. It appears that in bleaching with sodium peroxide, age is less critical with neutral sulphite semichemical pulps than with mechanical pulps.

Yield of Bleached Pulp

As previously mentioned, one of the attractive possibilities of the sodium peroxide process for bleaching semichemical pulp was that of a high yield of bleached pulp. That this possibility was realized is shown by results of a series of triplicate experiments with pulp No. 5115-N made solely for the determination of yield under conditions which tended to preclude mechanical loss of fiber.

Yields obtained in experiments using 2, 3, and 4% sodium peroxide, applied under conditions shown in Table III for bleaches 860, 855, and 851, were 97.1, 96.1, and 95.7% of the unbleached pulp. The maximum variation in yield among triplicate samples was 0.7%.

Effect of Bleaching on Pulp Strength and Chemical Components

The results given in Table IV of strength tests made on pulp No. 5115-N before and after bleaching show a definite, although not a large, increase in strength due to bleaching. This is most noticeable in the folding strength, which is generally the most sensitive to influences affecting strength. The maximum increase in folding endurance was obtained with 4% peroxide. In the unbeaten condition the increase was 56 from an initial value of 12, and at 500 cubic centimeters freeness the increase was 135 from an initial value of 135. Increases in the other strength properties were essentially the same in the unbeaten condition and at 550 ml. freeness, namely, bursting strength, 0.15 point; tearing strength, 0.26 point; and tensile strength, 700 p.s.i.

Washing the bleached pulp prior to beating had no significant effect on the strength development.

The chemical components which appeared to be of interest for measurement were lignin, total pentosans, and mineral content. The results given in Table IV show that the bleaching treatments had no important effect on the lignin and total pentosan content of the unbleached pulp but that the mineral content was increased appreciably. A washing treatment comprising diluting the reaction mixture to a 1% consistency and filtering three successive times did not reduce the mineral content.

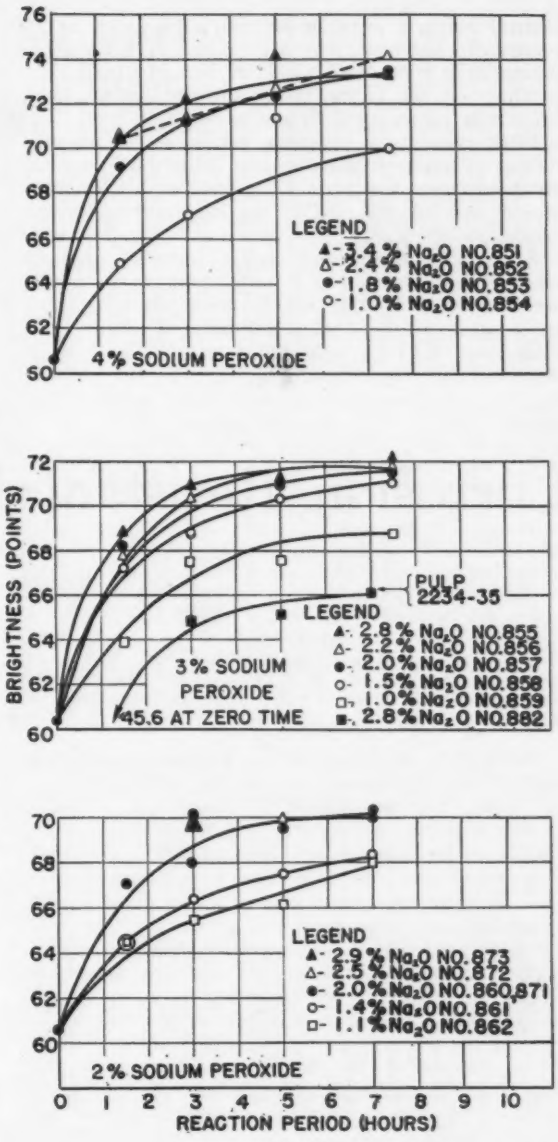

FIG. 2

Influence on the Rate and Degree of Brightness Development of the Alkalinity of the Bleaching Solution for Various Amounts of Sodium Peroxide. (Pulp No. 5115N and P-2234-35)

It is thus apparent that the bleaching action does not depend on removal of lignin and that the alkalinity and oxidizing power of the bleaching solution are not great enough to remove more than 5% of the pentosans.

Fading of the Bleached Pulp

The pulp test sheets upon which brightness was measured immediately after bleaching were stored at room temperature but shielded completely from light for 6 months. At the end of this time, the average recession in brightness for all samples as shown in Table III was 2.5 points. There was no apparent correlation between the amount of recession and the variations in the bleaching conditions.

Conclusions

The one-stage sodium peroxide bleaching process offers a means for increasing the brightness of aspen

neutral sulphite semichemical pulp as much as 20 points with not more than 4% sodium peroxide while maintaining 96 to 98% yields of bleached pulp. Depending on the character of the unbleached pulp, brightness values up to 74 can be realized.

With respect to bleaching conditions, it appears that an alkalinity in the range of 2.0 to 3.6%, a comparatively high density of 12 to 15%, and a temperature of not less than 52°C. are required to develop maximum brightness.

A definite, though not large, increase in pulp strength results from bleaching under these conditions, and there is little effect on the lignin and pentosan content of the unbleached pulp. However, the strength of both the unbleached and bleached aspen semichemical pulp is much higher than that of the highest quality of groundwood pulp.

The age of the semichemical pulp appears to be much less critical than that of mechanical pulp in bleaching by the sodium peroxide process.

The use of iron-free process water is desirable to assure maximum brightness.

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Corrosion Resistant Metal Covered Rolls*

By H. Ross Strohecker[1]

Abstract

A brief description is given of the method of manufacture of metal covered rolls and mention is made of their application.

About eight years ago C. G. Watson presented a paper before this association on the subject of covered rolls. For the benefit of those who are not familiar with this product, it is described briefly.

Rolls to be covered are first carefully prepared by accurately machining the face to required dimension. The cover is carefully formed and fitted to the roll so that two or more pieces are required to surround the girth and two or more longtitudinal seams are in evidence. By the use of carefully prepared clamps, the cover is pressed tightly to the roll, and the longitudinal seams are welded. Contraction which occurs in the welding of these seams gives the equivalent of a shrink fit. By this process it is possible to procure a fit so tight that the cover will rupture in tension. However, proper precautions are taken so that this does not occur.

Roll Covers

Covers are made from Monel, nickel, stainless steels, Inconel, or any other metal which can be satisfactorily welded and is available in the form of rolled sheet or plate. Covers are not sprayed or plated; they are homogeneous sheets of metal which will wear, resist corrosion, and retain the fineness of surface peculiar to the particular alloy from which they are made. The specific application for the roll is the determining factor in the selection of the alloy and the thickness of cover.

During the last eight years thousands of covered rolls have been furnished to the paper industry. According to reports, they are all operating satisfactorily with two or three exceptions. Some of the early installations were rather crude. The mistake was made of trying to make a very cheap product. Experience has shown that a firm, straight, and true roll must be the starting point. It is possible to reclaim many old rolls which would otherwise be consigned to the scrap heap; however, it is necessary to true up both face and journals of such a roll and there must be a substantial supporting shell thickness, otherwise it is useless to cover it.

In the process of covering several thousands of rolls ranging in diameter from 3 inches to over 6 feet, much has been learned from experience. The preparation of the cover and the welded seams, the actual welding, and the finishing of the various alloys have been subject to steady advancement in technique.

Application

Some of the limitations for covered rolls have been learned the hard way. For applications where pressures are high, such as calender stacks, it has been found that the presently available corrosion resistant alloys are too soft to withstand high unit pressures. In such an application the cover is cold rolled or stretched so that it becomes loose and useless. Development work with age hardening cover materials is now under way and covered rolls which will have much greater surface hardness and be applicable to higher pressure installations are being developed. The first of these rolls covered with "K" Monel is giving excellent service in an ink mill. This is an important development since experience over a period of ten years has shown that most of the covered rolls deteriorate from wear rather than corrosion.

A Monel covered chemical flaker has been in continuous service for eight years. It replaced a cast iron roll which required refinishing every ninety days. A smoothing press roll has been in constant service for six years. There are hundreds of other installations where the smooth corrosion resistant surfaces of covered rolls has eliminated the necessity for frequent refinishing and costly maintenance.

These rolls are now being used for many applications in the paper industry such as breast rolls, table rolls, wire carrying rolls, felt rolls, driers, chill rolls and many special applications. To the best of available knowledge, the requirements of these applications are being satisfactorily met.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Chief Engineer, The Youngstown Welding & Engineering Co., Youngstown, Ohio.

Paper and Paper Stock Imports At New York and Other Ports

NEW YORK IMPORTS

WEEK ENDING SEPTEMBER 7, 1946

SUMMARY

Cigarette Paper .....45 cs.
Newsprint .....8,598 rolls
Drawing Paper .....2 cs.
Filter Paper .....21 cs.
Paperhangings .....18 bls., 2 cs.
Photo Paper .....3 cs.
Wallpaper .....1 cs.
Writing Paper .....1 cs.
Sulphite Wrapping Paper ....454 rolls
Miscellaneous Paper .....12 cs.

CIGARETTE PAPER

Braunstein & Co., Oregon, Havre, 45 cs.

NEWSPRINT

H. G. Craig Co., Donpaco, Donnacona, 390 rolls.
H. G. Craig Co., G.D.D., Donnacona, 370 rolls.
Montgomery Paper Co., David R. Lecraw, Botwood, 2968 rolls.
News Syndicate Co., Kay, Thorold, 900 tons.
News Syndicate Co., Brian, Thorold, 900 tons.
News Syndicate Co., Empire State, Baie Comeau, 2277 rolls.
H. G. Craig Co., G.T.D., Donnacona, 390 rolls.
H. G. Craig Co., A.C.D., Donnacona, 403 rolls.

DRAWING PAPER

Stevens Nelson Paper orp., George E. Merrick, London, 2 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., George E. Merrick, London, 21 cs.

PAPERHANGINGS

W. H. S. Lloyd & Co., George E. Merrick, London, 18 bls., 2 cs.

PHOTO PAPER

(———), George E. Merrick, London, 3 cs.

WALLPAPER

F. Schumacher, Oregon, Havre, 1 cs.

WRITING PAPER

M. Freund, Bates Victory, Genoa, 1 cs.

SULPHITE WRAPPING PAPER

Curaco Trading Co., Inc., Gripsholm, Gothenburg, 454 rolls.

MISCELLANEOUS PAPER

Hamilton Bank Note Printing & Engraving Co., George E. Merrick, London, 7 cs.
W. Jones, Oregon, Havre, 2 cs.
American Express Co., Oregon, Havre, 3 cs.

RAGS, BAGGINGS, ETC.

Loumar Textile By-Products, Inc., Halton R. Carey, Liverpool, 48 bls. old bagging.
Tradesmans National Bank Trust Co., Halton R. Carey, Liverpool, 78 bls. cotton rags.
W. J. Green & Co., Inc., Halton R. Carey, Liverpool, 86 bls. cotton rags.
Tradesmans National Bank Trust Co., American Importer, Glasgow, 842 bls. old webbing.
(———), American Importer, Glasgow, 13 bls. old bagging.
Harmon Lichtenstein & Co., American Importer, Glasgow, 102 bls. old bagging.
Rohner Gehrig & Co., Alma Victory, Leghorn, 1 bl. rags.
Textile & Paper Supply Corp., Alma Victory, Leghorn, 250 bls. dark cotton rags.
E. J. Keller Co., Inc., Alma Victory, Leghorn, 180 bls. rags.
New England Waste Co., Wild Rover, Buenos Aires, 69 bls. cotton waste pickers.
(———), George E. Merrick, London, 84 bls. old cotton rags; 42 bls. new cotton rags.
Irving Trust Co., George E. Merrick, London, 71 bls. new colored cotton cuttings.
Tradesmans National Bank Trust Co., George E. Merrick, London, 43 bls. rags.
Fulton Weeks Corp., American Merchant, London, 461 bls. picker lime waste.
Liebman Woolstock Co., San Angelo Victory, Buenos Aires, 6 bls. wool rags.
Padawer Corp., San Angelo Victory, Rio de Janiero, 95 bls. cotton waste.
Padawer Corp., Willis Victory, Bombay, 100 bls. cotton waste.
Riverside Mills, Willis Victory, Bombay, 284 bls. cotton waste.
Schimmel Trading Corp., Willis Victory, Bombay, 100 bls. cotton waste.
O'Brien Products, Inc., Willis Victory, Bombay, 45 bls. cotton waste.
Brandwein Mazur Co., Willis Victory, Bombay, 197 bls. cotton waste.
M. N. Schone Co., Willis Victory, Bombay, 477 bls. cotton waste.
Textile & Paper Supply Corp., Bates Victory, Genoa, 108 bls. rags.
Public National Bank Trust Co., Exiria, Leghorn, 17 bls. colored thread waste.
Textile & Paper Supply Corp., Exiria, Leghorn, 242 bls. dark cotton rags.
Webster & Arlas National Bank, Exiria, Genoa, 51 bls. thread waste.
New England Waste Co., Havmann, Bombay, 1550 bls. cotton waste.
Yolkart Bros., Inc., Havmann, Bombay, 1425 bls. cotton waste.
C. Comiter, Havmann, Bombay, 300 bls. cotton waste.
McKay & Co., Inc., Havmann, Bombay, 500 bls. cotton waste.
Riverside Mills, Havmann, Bombay, 380 bls. cotton waste.
Padawer & Co., Havmann, Bombay, 150 bls. cotton waste.
Brandwein Mazur Co., Havmann, Bombay, 800 bls. cotton waste.
Lush Cotton Products Co., Inc., Havmann, Bombay, 300 bls. cotton waste.
Buffalo Batt & Felt Corp., Havmann, Bombay, 250 bls. cotton waste.
W. J. Green Co., Inc., Havmann, Bombay, 330 bls. old jute rags; 11 bls. old canvas rags.
Railway Supply & Manufacturing Co., Havmann, Bombay, 100 bls. cotton waste.
Schimmel Trading Corp., Havmann, Bombay, 214 bls. cotton waste.
A. Bloch & Co., Havmann, Bombay, 36 bls. old waste bagging.
Castle & Overton, Inc., Havmann, Bombay, 275 bls. old jute rags.
New England Waste Co., Havmann, Tuticorin, 1200 bls. cotton waste.
National City Bank, Havmann, Tuticorin, 535 bls. cotton waste.
Webster & Atlas National Bank, Havmann, Tuticorin, 100 bls. cotton waste.

OLD ROPE

(———), American Importer, Glasgow, 69 coils.

HIDE GLUE

Transatlantic Animal By-Products Corp., Wild Rover, Montevideo, 100 bags.

CASEIN

E. M. Sergeant Pulp & Chemical Co., San Angelo Victory, Buenos Aires, 1060 bags ground lactic casein.
Marine Trust Co., San Angelo Victory, Buenos Aires, 400 bags ground casein.
Bankers Trust Co., San Angelo Victory, Buenos Aires, 1000 bags ground casein.
Tupman Thurlow Co., San Angelo Victory, Buenos Aires, 2500 bags ground lactic casein.

WOODPULP

Perkins Goodwin & Co., Gripsholm, Gothenburg, 1143 bls. unbleached sulphate pulp, 226 tons.

Sun Oil Issues Bulletin On Diesel Lubrication

A new, revised technical bulletin, "Lubrication of Diesel Engines," has just been released by the Sun Oil Company. This illustrative and informative booklet includes a brief history of Diesel engines; as well as a description of the fundamentals and advantages of various types. Valuable recommendations on the lubrication of Diesels and the addition of viscosity-temperature and trouble-shooting charts make this booklet particularly useful. Descriptions of fuel-injection systems and the supercharging of Diesels as well as their maintenance and operation are all part of Technical Bulletin No. B-1 (Revised).

Week's Record of Trends in The Pulp and Paper Market

Office of the PAPER TRADE JOURNAL,
Wednesday, September 11, 1946.

Demand for paper and paperboard continues to exceed supplies with the result that there has been slight, if any, increase in inventories. Shortages in the Northeast are particularly acute in coarse papers, kraft and book papers, and certain converted products such as paper cups. Some Chicago mills are operating at capacity while others which are expanding have been slowed down by delays in the delivery of new machinery and parts. Reports from leading publishing centers indicate that demand continues high for groundwood printing, book and fine papers, while production remains insufficient to permit the building up of inventories. Despite the continued high level production of coarse papers, demand is far ahead of supply, with kraft paper extremely short.

Supplies of paperboard have shown no signs of easing. Some plants are reported operating at only 3 days a week with others shutting down entirely for indefinite periods. Combining of board production and box manufacturing into integrated operations will soon force some box plants to close down. These manufacturers are unable to find new suppliers of their raw material and until board again becomes freely available on the open market their operations will be conducted under severe handicaps. The position in the box and container field is the same as in paper bags. The Folding Paper Box Association reports that orders entered to date have been higher than shipments billed during each month of this year and that the cumulative totals for orders entered and shipments billed (both in tons and dollars) are higher for 1946 to date than for any similar period of which the association has a record. The number of hours of work ahead continues to increase showing that in spite of larger shipments, production is not keeping up with orders.

Pulpwood supply situation continues favorable with both receipts and inventories in all regions maintaining their relative seasonal position according to Commerce Department field office reports. Labor available for woods' operations seems to be adequate with only a few areas in the Southern region reporting minor difficulties in this respect. In the Lake States region it is reported that a number of mills have been advertising their pulpwood requirements and have encouraged farmers to cut pulpwood under contract. As a consequence, the over-all situation is showing improvement.

The index of general business activity for the week ended August 31 fell to 136.2 from 136.4 in the previous week, compared with 127.8 for the corresponding week in 1945. The index of paperboard production rose to 164.8 from 163.2 in the previous week, compared with 152.0 for the corresponding week in 1945.

Paper production for the week ended August 31 was estimated at 105.6 per cent compared with 106.1 for the preceding week, with 95.2 for the corresponding week in 1945, with 89.4 for 1944, with 90.7 for 1943, and with 83.3 per cent for the corresponding week in 1942.

Paperboard production for the week ended August 31 was 100.0 per cent of capacity, compared with 100.0 per cent for the preceding week, with 97.0 for the corresponding week in 1945, with 97.0 for 1944, with 97.0 for 1943, and with 78.0 per cent for the corresponding week in 1942.

Wood Pulp

In announcing the 10 per cent increase in wood pulp prices OPA said the increase will offset higher costs and encourage continued domestic production. It added that the higher ceilings will reduce Government subsidies on wood pulp production in the United States, although some subsidies will be required for high cost marginal mills.

Recent raises in the value of the Canadian dollar and the Swedish krona contributed to the higher ceiling on imports, OPA said, in order to assure supplies. About half the marketed wood pulp used in this country is imported from Canada and the Scandinavian countries. As additional encouragement for Scandinavian exporters, OPA announced that they will be required to absorb a smaller amount of North American transportation costs. European producers have been absorbing about $4 a ton of these costs. This will be cut to $2. OPA said the increases are necessary to maintain adequate supplies of wood pulp for the paper mills that use this product.

Rags

Demand for new cotton cuttings is very firm and will remain heavy as long as sulphite pulp supplies are below mill requirements. Increasing export demand aggrevates the situation. Prices are steady at ceilings for all grades.

Standard specification rags are offered at $29 to $31 in deals with heavy wipers at $50 to $55. Market for foreign dark cottons remains limited with offerings at $72 to $80.

Old Rope and Bagging

Market remains steady for old rope at ceiling levels. Thirty dollars per ton for mixed strings for fiber making is usual. Soft jute continues 4.50 to 5.50c, hard jute 3c to 3.75c, while jute strings bring 5 to 5.50c. Manila and sisal are firm at 5.75c and 4.75c respectively.

Bagging market is steady with buyers readily absorbing most offerings. Gunny is in demand at 4.12½ to 4.20c a pound, with the trade paying about the same for mill run bagging. Mixed bagging brings 4.20 to 4.25c. Scrap burlap continues at 4 to 4.25c.

Waste Paper

Demand for all grades continues fairly strong. Over-all situation indicates a steady market for some time ahead, although spotty conditions arise in various localized areas from week to week.

All good grades command top prices. One cut white envelopes remain $67.50; soft white shavings $43.00 to $57.50; triple sorted No. 1 brown soft kraft $50 for quality paper; with No. 1 heavy books and quality magazines still going at $38.50.

AFL Complains Against Diamond Match Company

SPRINGFIELD, Mass. — William Malone, AFL organizer, has notified Diamond Match Company officials that he is filing charges of unfair labor practice against the company with the National Labor Relations Board because of the discharge of a woman office clerk. Organization of the office employes of Diamond Match has been completed to the stage of applying for a charter from the Office Workers Union, AFL, and a request for the NLRB to set a date for an election was filed some time ago. It is Malone's allegation that the clerk was discharged because of her activities in effecting organization of the office workers of the plant.

Diamond Match recently signed a new contract with Matchworkers Federal Union, AFL, Local No. 18734, in which a majority of its shop workers are members.

Mead Introduces Holt At Labor Celebration

WISCONSIN RAPIDS, Wis. — George W. Mead, president of the Consolidated Water Power and Paper Company, introduced the principal speaker at the Central Labor Union's Labor Day celebration here. The speaker was Frank O. Holt, director of the University of Wisconsin's Department of Public Service.

"There was a time when business went on as usual on this day," Mr. Mead said, "but now Labor's day ranks high among our national holidays, with all paying tribute to the workingman.

"The high cost of living," he continued, "is perhaps our most serious problem right now. It must be solved by producing at a lower cost and I believe this can be done through mass production and new techniques."

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(4) Soil moisture and rain water held in joints, etc., of outdoor structures
(5) Moisture condensed by concrete or masonry

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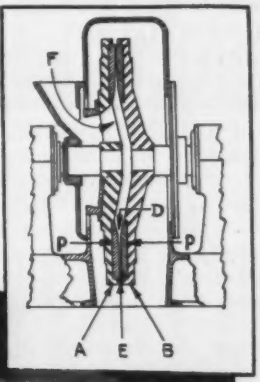

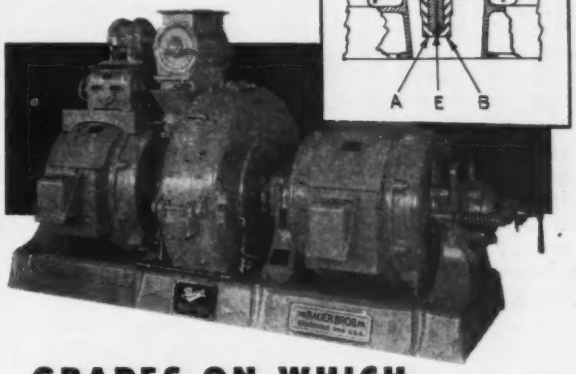

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- Semi-Chemically Cooked woods for Manufacture of .009 for Corrugating and for Wallboard.
- For removal of shive from Soda Pulp for printing paper.
- For manufacture of Newsprint, special Wrapper Stock, Board, and Specialties.
- For production of various grades of Kraft Board and Kraft Bag Papers.
- For use in Paper Board Manufacture as filler and Liner; for Auto Panel Board; for Wallboard Filler; in preparation for De-inking Processes; wherever freeness, freedom from cutting, uniformity, and complete defibering is required.

THE BAUER BROS. CO.
SPRINGFIELD, OHIO

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SPRINGFIELD, OHIO

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, September 11, 1946.

BLANC FIXE—Tight situation in raw materials with demand active. Pulp is currently quoted at $40 per ton, in barrels, car lots, at works; the powder is currently quoted at $60 per ton, car lots, f.o.b. works.

BLEACHING POWDER—No excess stocks, but supplies are reported adequate to meet domestic demand, while drum shortage delays shipments. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots at works.

CASEIN — Prevailing prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 33 cents per pound; 2,000 pounds, 33¼ cents per pound; less than 2,000 pounds, 33¾ cents per pound, f.o.b. shipping point. Sales at current ceiling on open billing effective August 15.

CAUSTIC SODA—Market conditions critical, with supplies tightest ever. Steel sheet shortage creates drum scarcity. Cutback production further reduces stock. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $2.95 per 100 pounds. All prices car lots.

CHINA CLAY—Domestic and English grades adequate to meet demands. Quotations remain unchanged. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $22 to $25 per long ton, ship side. All prices quoted in car lots.

CHLORINE—Demand continues to exceed production, stocks low, with little improvement in container supply. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Gum rosin in drums, per 100 pounds net, in yard, New York. B, $7.23; D, $7.30; E, $7.83; F, $7.93; G, $7.97; H to I, $7.99; K, $8.03; M, $8.05; N, $8.21; WG, $8.43; WW, $8.70. All prices in car lots.

SALT CAKE—Demand increasing with inventories showing no improvement. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Supplies continue short, demand active, previous orders filled. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels, $1.35. Current boxcar shortage temporarily delays shipments.

STARCH — Supplies inadequate to meet demand. Previous orders filled. Starch prices continue unchanged. The pearl grade is quoted at $5.87 per 100 pounds; powdered starch at $6.02 per 100 pounds; both prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand active, supply fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.20 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Strong seasonal demand is reported with stocks plentiful. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $17.50 per long ton. Prices in car lots. Some shipments temporarily delayed.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices on car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March, 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	$74.00	@	—
Sheets	75.00	@	—
Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard bag	*4.75	"	—

* Prices for Standard Wrapping are for 40 lb. base weight; for Standard Bag for 30 lb base weight.

Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00
Boards, per ton—			
News	*58.00	@	—
Chip	*58.00	@	—
Sgl. Mla. Lt. Chip	*67.00	@	—
White Uat. Coated	*81.00	@	—
Kratt Liners 50 lb.	*74.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—White, Assorted Items

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper

No. 1 Glossy Coated	$13.65@$15.5	
No. 2 Glossy Coated	12.40 "	14.0
No. 3 Glossy Coated	11.60 "	13.2
No. 4 Glossy Coated	11.15 "	12.7
No. 1 Antique (watermarked)	10.25 "	11.7
No. 2 Offset	9.60 "	11.0
A Grade E. F.	9.35 "	10.7
A Grade S. & S. C.	9.60 "	11.0
B Grade E. F.	8.85 "	10.2
B Grade S. C.	9.10 "	10.5
C Grade E. F.	8.55 "	9.7
C Grade S. C.	8.80 "	10.0
D Grade E. F.	8.25 "	9.5
D Grade S. & S. C.	8.50 "	9.7

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight Not Exceeding OPA Allowances

Bl. Softwood Sulphite	$103.50
Unbl. Softwood Sulphite	90.00
Bl. Hardwood Sulphite	100.50
Unbl. Hardwood Sulphite	87.50
N. Bleached Sulphate	103.50
S. Bleached Sulphate	97.00
N. Semi-Bleached Sulphate	98.00
S. Semi-Bleached Sulphate	91.50
N. Unbl. Sulphate	83.50
S. Unbl. Sulphate	76.50
Bleached Soda	93.50
Unbleached Soda	88.00
Groundwood	64.00
Ground—Machine Dried	67.00
Sulphite Screenings	50.00
Sulphate Screenings	44.00
Groundwood Screenings	37.50
N. Unbl. Sulphate Sideruns	83.50
S. Unbl. Sulphate Sideruns	76.50
Standard Newsprint Sideruns	64.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area)	15.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Nominal Prices Delivered to Mill + 5% Brokerage)

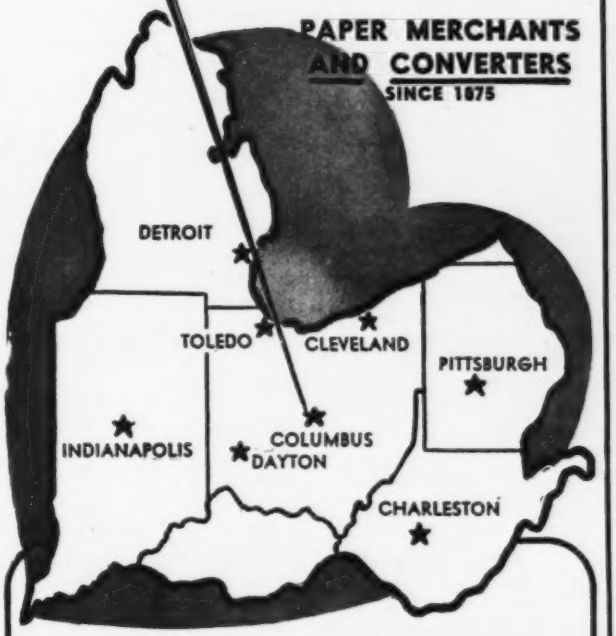
Shirt Cuttings—		
New White, No. 1	7.25 @	Nominal
Silesias No. 1	5.75 "	"
New Unbleached	7.50 "	"
Blue Overall	5.50 "	"
Fancy	3.50 "	"
Washables	3.00 "	"
Bleached Khaki Cutting	4.25 "	"
Unbleached Khaki Cuttings	3.50 "	"

FOR BANNER PAPER SALES IN THE VERY HEART OF INDUSTRIAL AMERICA . .

SELL THROUGH

The Central Ohio Paper Co.

PAPER MERCHANTS AND CONVERTERS SINCE 1875



Accepted in this area for 70 years as steady, reliable suppliers of paper products, we enjoy a rich market for sales. We convert large quantities of envelopes and school supplies. We also laminate, coat or impregnate paper, cellulose film, foil, acetate, cloth and similar materials.

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RHINO CORE
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An extremely tough and practical core of tested strength, on which we have maintained quality standards and adequate production. . . . Has wide range of uses where practical to use non-returnable type.

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Grade A—Heavy Duty Metal Ends—Fibre Stock Construction—strong, rugged, hard finish.

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SONOCO MAKES EVERYTHING IN PAPER CARRIERS
SONOCO PRODUCTS COMPANY
BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.
SHIPPING POINTS: LOWELL, MASS. HARTSVILLE, S. C.
DEPENDABLE SOURCE OF SUPPLY

Old Rags

White, No. 1—			
Repacked	3.80	@	Nominal
Miscellaneous	3.20	"	"
White, No. 2—			
Repacked	2.90	"	"
Miscellaneous	2.65	"	"
Thirds and Blues—			
Repacked	2.20	"	"
Miscellaneous	1.30	"	"
Roofing Rags—			
No. 1	1.55	"	"
No. 2	1.45	"	"
No. 3 (bagging)	1.35	"	"
No. 4	1.35	"	"
No. 5A	1.35	"	"
Old Manila Rope	5.75	"	"

Foreign Rags

(All Prices Nominal)

New Rags

New Dark Cuttings	6.00	@	Nominal
New Mixed Cuttings	6.50	"	"
New Light Silesias	5.75	"	"
Light Flannelettes	5.75	"	"
New White Cuttings	12.00-14.00		
New Light Oxfords			Nominal
New Light Prints	8.00-10.00		

Old Rags

No. 1 White Linens	8.50	@	Nominal
No. 2 White Linens	7.50	"	"
No. 3 White Linens	Nominal		
No. 4 White Linens	3.25	@	Nominal
No. 1 White Cotton	4.75	"	"
No. 2 White Cotton	3.75	"	"
No. 3 White Cotton	3.00	"	"
No. 4 White Cotton	2.20	"	"
Extra Light Prints	2.40	"	"
Ord. Light Prints	5.50	"	"
Med. Light Prints	4.75	"	"
Dutch Blue Cottons	Nominal		
French Blue Linens	Nominal		
Checks and Blues	4.00	"	"
Linsey Garments	4.00	"	"
Dark Cottons	3.60	"	"
Old Shopperies	3.35	"	"
New Shopperies	3.50	"	"
French Blues	Nominal		

BAGGING

(Prices to Mill, f.o.b. N. Y.)

Gunny No. 1—			
Foreign	4.00	@	Nominal
Domestic	3.30	"	"
Wool Tares, light	4.00-4.75		
Wool Tares, heavy	4.50	@	Nominal
Bright Bagging	3.50	"	"
Manila Rope—			
Foreign	Nominal		
Domestic	5.75	@	Nominal
Jute Strings	4.50	"	"
No. 1 Sisal Strings	3.00	"	"
Mixed Strings	1.50	"	"

Waste Paper

Nominal Prices to Mills

(Dollars Per Ton)

F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$67.50	@	—
No. 1 Hard White Envelope Cuts	62.50	"	—
No. 1 Hard White Shavings, unruled	57.50	"	—
No. 1 Hard White Shavings, ruled	50.00	"	—
Soft White Shavings, one cut	57.50	"	—
No. 1 Soft White Shavings	50.00	"	—
Soft White Shavings, Misc.	43.00	"	—
No. 1 Fly Leaf Shavings	33.50	"	—
No. 2 Fly Leaf Shavings	22.50	"	—
No. 1 Groundwood Fly Leaf Shavings	25.00	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	18.50	"	—
Mixed Colored Shavings	15.50	"	—
Mixed Groundwood Colored Shavings	18.00	"	—
Overissue Magazines	33.50	"	—
No. 1 Heavy Books & Magazines	38.50	"	—
Mixed Books	22.00	"	—
No. 1 White Ledger	46.00	"	—
No. 2 Mixed Ledger, colored	40.00	"	—
New Manila Envelope Cuttings, one cut	57.50	"	—
New Manila Envelope Cuttings	53.00	"	—
Extra Manilas	39.00	"	—
Mixed Kraft, Env. & Bag Cuttings	55.00	"	—
Kraft Envelope Cuttings	65.00	"	—
Triple Sorted, No. 1 Brown Soft Kraft	50.00	"	—
New 100% Kraft Corrugated Cuttings	45.00	"	—
No. 1 Assorted Old Kraft	35.00	"	—
New Jute Corrugated Cuttings	18.50	"	—
Old 100% Kraft Corrugated Containers	35.00	"	—
Box Board Cuttings	14.50	"	—
White Blank News	33.00	"	—
Overissue News	22.00	"	—
No. 1 News	20.00	"	—
No. 1 Mixed Paper	19.00	"	—
Old Corrugated	28.00	"	—
Mill Wrappers	22.00	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.26	@	—
White Hemp	.26	"	—
Fine Polished—			
Fine India	.31	"	—
Unpolished—			
Box	.20¼	"	—
Paper Makers	.20	"	—
Tube Rope	.22	"	—
Wall Paper	.23½	"	—
Wrapping	.26	"	—
Soft Fiber Rope	.22	"	—
Cotton	.28	"	—
(Hard Fiber)			
Medium Java	.23	"	—
Mex. Sisal	.21	"	—
Manila	.33	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¼
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.50
No. 1 Clean Bright—			
Sisal Strings	.04	"	—
No. 2 Clean Bright—			
Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.30
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¼	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¾
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached Blue Cheviots	.06½	"	.06¾
	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¾	"	.06½
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—

WILLIAMS PRECISION FREENESS TESTER

The Most Accurate Freeness Tester Ever Built

Operates on the Only Correct Principle of Freeness Testing.
Automatic Timing with Electric Stop Clock which Measures Drainage Rate through a Wire, same as on Paper Machine.
Sample Easily Removed for Determination of Bone Dry Weight.
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Most Rapid — Easiest to Operate

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Engineers and Constructors
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HELP WANTED

CHIEF ENGINEER

To assume complete charge new power plant; progressive paperboard mill. Address Box No. 46-626 care Paper Trade Journal. O-3

PAPER MACHINERY ENGINEER

We need a competent engineer who knows paper machinery. This is a big job and will pay well. Location in the East. Any application will be held strictly confidential. Address Box 46-627 care Paper Trade Journal. S-26

WANTED
TOUR BOSS

Experienced in Roofing Felt Mill operations, to be trained for Assistant Superintendent job in New Orleans Plant of long established nation-wide organization. Send complete resume giving experience, education, salary expected, etc., to Box 46-628 care Paper Trade Journal. S-19

WANTED

Tour Boss, Machine Tenders, Back Tenders, Third Hands, familiar with manufacturing toilet, napkin, facial tissue, in an Eastern mill. Reply to box—46-466 care Paper Trade Journal. S-12

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$2,500-$25,000. This thoroughly organized confidential service of 36 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

PROCESS ENGINEER

Wanted

With wide experience in pulp and paper making processes. Must be able to develop flow diagrams and specify related equipment. Excellent opportunity for the right man. Please furnish complete experience record.
Address Box 46-261 care Paper Trade Journal. TF

Wanted—Paper man, 22 to 35, with production or technical experience, for sales-service work. Box No. 46-581 care Paper Trade Journal. S-12

Wanted

Mill maintenance mechanics for paper mill. Must be experienced and willing to make Miami their permanent home. Address P.O. Box 66, Miami Springs, Fla. S-26

$6,000 to $10,000 annually for Paper Mill Engineers who can qualify.

(a) Operations and process engineer with technical plant experience in general paper and board plants.

(b) Engineer and project man capable of coordinating the design and construction of paper and board making facilities including writing specifications and purchase of equipment. Experience with consulting engineer highly desirable.

Give complete details in first letter including age, education, record of experience and earnings. Salary expected, when available for interview. Box 46-582 care Paper Trade Journal. S-12

Chemist on folding boards, required for our Stroudsburg, Pennsylvania plant. This position offers unusual opportunity for advancement. Please give complete experience and salary expected in first letter.

EMPIRE BOX CORPORATION
Garfield, N. J. S-19

WANTED WEAVING ROOM SUPERINTENDENT—to directly supervise all of the work of weaving and finishing special fabrics made of paper yarn, and to have charge of pattern design and manufacturing processes for a well-established business, located in an exceptional city of a north central state. Applicant must have a combination of a technical and practical experience, plus the ability to handle people, and a friendly but strong personality that will assure his success and worthiness of this excellent opporunity. State training, experience, references and salary expected. Address Box 46-594 care Paper Trade Journal. S-12

WANTED—TOUR BOSS for prominent New England Mill with two board machines, manufacturing high grade folding box board. Permanent position. Write, giving age, qualifications and salary expected in first letter. Address Box 46-521 care Paper Trade Journal. TF

HELP WANTED

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston, Mass.

Specializing in Paper Mill Personnel
Positions Now Open

Mechanical (graduate engineer) $6,000 year (New Jersey mill)
Superintendent, assistant superintendent and tour boss for Canadian felt and board mills
Chemists and Chemical engineers
Plant engineer, Canadian mill $350-400 month
Superintendent paper converting plant (boxboard and heavy board)
Beater engineers
Millwrights
Master Mechanics and assistant master mechanics
Superintendent fibre board cylinder mill

We invite correspondence (strictly confidential) with paper and pulp mill executives seeking new positions and with employers seeking new personnel. S-12

ASSISTANT SUPERINTENDENT of maintenance with paper mill experience, knowledge of power and electricity necessary. Must be college graduate. Give full information including experience and age. Address Box 46-588 care Paper Trade Journal. S-12

WANTED—PAPER EXPORT EXECUTIVE—Take complete charge. Excellent opportunity. Give full details. Address Box 46-620 care Paper Trade Journal. S-12

GUMMING SUPERVISOR—Wanted by large well established paper converter. Should have practical experience in production of gummed paper and cloth tapes and gummed specialty papers. Give full details of qualifications and experience. Address Box 46-612 care Paper Trade Journal. S-12

WANTED—Mechanical Engineer for maintenance also new construction by kraft pulp and paper mill on Pacific Coast: Good future for the right man. Address Box 46-624 care Paper Trade Journal. S-26

WANTED—5 young engineers to travel throughout United States and Canada to call on Paper and Pulp Mills. Can earn up to $6,000 per year. Write stating age, experience and qualifications. Address Box 46-637 care Paper Trade Journal. S-12

FOREMAN OR SUPERINTENDENT WANTED—FOLDING BOX PLANT IN SOUTH DESIRES EXPERIENCED PRODUCTION, PLANNING AND SCHEDULING SUPERINTENDENT FOR FOLDING CARTON PLANT OR FOREMAN FULLY EXPERIENCED IN SUPERVISING AND PLANNING PRODUCTION OF CUTTING, CREASING AND GLUING OPERATIONS. OPPORTUNITY FOR ADVANCEMENT. P. O. BOX 4417, ATLANTA, GEORGIA. S-12

SITUATIONS WANTED

PAPER MANUFACTURERS ATTENTION

Broad experienced paper maker, Fourdrinier and Cylinder, middle aged, responsible, pleasing personality, specializing as individual in ironing out manufacturing or labor difficulties in confidential manner. Compensation one thousand dollars plus expenses per month. Address Box 46-623 care Paper Trade Journal. S-19

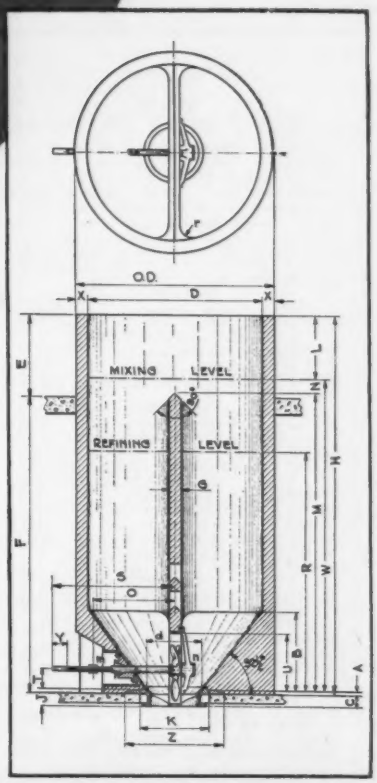
EXECUTIVE ASSISTANT — Graduate chemical engineer, age 32, with 9 years experience in paper chemicals from laboratory to paper mill service, desires executive experience. Address Box 46-613 care Paper Trade Journal. S-19

CHEMIST with wide experience in paper coating field, including printing and laminating operations, seeks position in coating or allied field. Available in near future. Address Box 46-625 care Paper Trade Journal. S-26

Miami PROPELLER AGITATORS ARE VERSATILE

Hydracycle Tank Agitator Assembly

Fleck Hydracycle Tank



MIAMI PROPELLER AGITATORS can be adapted to almost any chest condition — existing or proposed. They are, for instance, "naturals" for the agitation of Hydracycle Tanks, where they do a very outstanding job of stock agitating and blending.

Make your agitation problems our concern. We specialize in that field and are in position to solve them for you.

Adjustable pitch blades are standard and add a great deal to the wide adaptability of Miami Propeller Agitators.

Stock Preparation Systems	X-66 Plugs	Propeller Agitators	Waxing Machines
Hydrapulpers	Bulldog Fillings	Agi-flo Agitation	Water Finish Attachments
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Hydracycle Tanks	Hi-Speed Beaters	Waste Paper Systems	Steamfits, Syphons
Miami Jordans	Breaker Beaters	Chests—all kinds	Paper Machines
Flex Couplings			Drives, etc.

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THE BLACK-CLAWSON CO.
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GENERAL SUPERINTENDENT

SOUTHERN KRAFT

25 years experience both pulp and paper

Presently meeting specifications on ASPHALTING, CEMENT SACK, SATURATING and other converting grades. Available on 60 days notice. Salary $12,000. Address Box 46-597 care Paper Trade Journal. S-19

SUPERINTENDENT—30 years experience in light weight crepe tissues and towels. Capable of production and all maintenance on cylinder, Yankee pickups and Fourdrinier machines. References furnished. Address Box 46-619 care Paper Trade Journal. S-19

MILL REPRESENTATIVE covering the jobbing and direct trade for the past 15 years from Pennsylvania through to the Carolinas, now desires to operate over the same territories with 2 or 3 non-conflicting lines. What have you to offer? Address Box 46-412 care Paper Trade Journal. TF

POSITIONS WANTED—General Superintendent wishes to make change. Expert on ground wood and sulphite specialties. Book, Bond, Ledger and Cat. 19 to 100# and machine coating. Also beater and coating colors. Will go anywhere at once. Age 44. Well up on technical control. Address Box 46-579 care Paper Trade Journal. S-12

INSTRUMENT ENGINEER desires position as staff instrument engineer with a large pulp and paper mill. Graduate engineer with eight years experience in process instrumentation. Two years directly connected with the pulp and paper industry. Address Box 46-567 care Paper Trade Journal. O-3

EQUIPMENT BUILDERS: Experienced Engineer is free to undertake development and design of MILL CONTROL EQUIPMENT: Consistency, Metering, Proportioning, etc.: builder to retain exclusive license on royalty or outright sales basis. Address Box 46-610 care Paper Trade Journal. S-12

CHEMICAL ENGINEER—Top flight, with 15 years valuable experience directing research on pulp, paper, board, specialties and mill equipment, available for responsible job in production or technical direction. Address Box 46-616 care Paper Trade Journal. S-19

SITUATIONS WANTED

YOUNG EXECUTIVE AVAILABLE

for Production or Technical Assistant. Chemical Engineer, over nine years experience in research, development, control and all phases of production of book, writings, specialties. Alert, responsible, constantly abreast new developments. Age 30. Desirable living accommodations for family essential. Eastern or Southern location preferred. Available sixty days. Address Box 46-634 care Paper Trade Journal. S-19

FINISHING DEPARTMENT SUPERVISION. Years diversified practical experience, Cutting, Rewinding, Programing, Bond, Book, Kraft, Tissues, Waxed, Specialties, Converter considered. Address Box 46-618 care Paper Trade Journal. S-26

FOR SALE

FOR SALE

1—Dilts iron tub beater. Roll 62 x 54. Tub 24' long.

Box No. 46-632 care Paper Trade Journal. S-19

FOR SALE

BEATERS

1—2000 lb. Holyoke-Iron Tub Beater.
2—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—1000 lb. Stout & Mills Iron Tub Beater.
1—400 lb. Gavit—iron tub beater.
1—Breaker Beater—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.
1—Breaker Beater—New Perforated Backfall—48" face roll x 54" diameter—no tub.

BLOWERS

2—Buffalo Forge Company—Size 7—Duplex Conoidal steel plate Blowers. Ball bearing.

CALENDER STACKS

1—5 roll 84" face—Farrel.
1—6 roll—72" face.
1—7-roll 36" Holyoke Machine. (supercalender)

CENTRAP

1—Shartle Brothers Centrap.

COATING MACHINES

1—70" Waldron Brush Coater.
1—26" six roll coating machine.

COUCH ROLLS

2—82" face x 12" diameter.

CYLINDER MOULDS

1—30" diameter x 74" face.
2—30" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 84" face.

DOCTORS

14—Dillon Doctors—complete with accessories—98" face.

DRIVES

4—Smith & Winchester Drives.
1—Moore & White mortise gear drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM to 418 RPM.
7—D. O. James Angle Drives—11 to 1—12 to 18 h.p.

DRYERS

1—28" diameter x 76" face.
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby)
2—36" diameter x 64" face, with frames gears and bearings.
2—25" x 120" (Baby Dryers).
1—30" x 120".
1—48" x 100".
11—30" x 80". (Steel Dryers).
5—24" x 76". (Steel Dryers).
2—36" diameter x 38" face.

ERKENSATORS

1—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREEN

1—4 plate Flat Screen.

HYDRAFINER

1—Shartle Bros. Hydrafiner.

JORDANS

1—No. 2 Miami Jordan.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble and Wood, Monarch, new fillings.

LABORATORY EQUIPMENT

2—Mullen Testers.

MOTOR

1—25 h.p. motor, including starting equipment.

PRESS ROLLS (Rubber Covered)

1—27½" diameter x 186" face.
1—26" diameter x 185" face.

PULP EQUIPMENT

1—32" three pocket Glens Falls Grinder (for 27" wood).
1—4 knife Carthage Chipper, with 2 sets of spare knives.

PULP SCREEN

1—IMPCO centrifugal pulp screen design No. 3.

PULPER

1—Jones Pulper.

PUMPS

1—10 x 7½ Connersville Vacuum Pump.
1—No. 4 Connersville Vacuum Pump.
1—6 x 2L Connersville Vacuum Pump.
1—No. 7 Sturtevant Vacuum Pump.
1—Buffalo Pump—5500 g.p.m. direct connected to 100 H.P. Motor (50' head).
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

RAG CUTTER

1—Taylor Stiles, 14", Little Giant.

REDUCERS

3—Westinghouse Gear Motors—25 h.p.—115 output r.p.m.—3/60/440.
1—Master Gear Motor—15 h.p.—193 output r.p.m.—3/60/220-440.
1—Master Gear Motor—10 h.p.—153 output r.p.m.—3/60/220-440.

REELS

1—72" Downingtown Expansion Reel.
1—2 Bowl Reel — 112" face — bowls 20" diameter.
1—2 Bowl Reel—110" face.
1—Set Stack Reels, capacity trim 143".

ROLLS

500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

ROTARY SCREENS

4—#2A Bird Rotary Screens, Copper Vats, with motors.
3—Moore & White Rotary Screens (alternating diaphragm type).

SAVEALL

1—Saveall 36" diameter x 96" face cylinder mold. (With iron end vat.)

SCREW PRESS

1—Valley Iron Screw Press.

SCREEN PLATES

36 plates—43 x 11 3/16"—.050 cut—bevel edges
24 plates—Recently recut .008.
12 plates—Recently recut .035.
Also other sizes and cuts in stock.

SHREDDERS

1—No. 25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder.
1—Waterville Shredder.

SHEETERS

1—84" Finlay Sheeter, Erie Layboy and 9 roll backstand.
1—128" Moore & White Sheeter with layboy.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SLITTERS AND WINDERS

1—52" Johnstone Slitter & Winder.
1—36" Beck Razor Blade type Slitter & Winder.
1—60" Moore & White Slitter and Winder set for 5/8" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
1—120" Moore & White 4 drum slitter.
1—80" 2 drum Warren Winder.

STOCK PUMPS

1—12 x 20 Triplex Shartle.
1—8 x 18 Duplex Friction Co.
1—10 x 12 open impeller. (All lead).
Numerous other Centrifugal Stock Pumps Advise as to your requirements.

SUCTION BOX

1—Nash 100" face Suction Box.

TOILET AND TOWEL MACHINES

1—65" Towel Machine.
1—85" Toilet Machine.

V-BELT DRIVES

1—{23" diameter x 14" face, 10 grooves.
{15" diameter x 14" face, 10 grooves.

WET MACHINE

1—74" Moore & White.

We are always in the market to purchase your surplus or idle machinery. What have you to offer? Wanted Cylinder and Fourdrinier Machines (complete mills).

J. J. ROSS COMPANY

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ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

1—Shartle Brothers 2 cylinders—120" machine. (Can supply four additional cylinders and vats). Machine includes:—2 pairs of baby presses, 3 pairs of primary presses, 2 pairs of main presses, 27 dryers 36" diameter x 115¼" face—3 deck—spare cylinder mould and couch. Drives, stands, line shaft and pulleys. Blue prints available.

1—Farrel Birmingham 16" Asphalt Extruder Complete.—Used 7 months.

AIR HOISTS
2—Two-Ton Ingersoll Rand
2—Five-Ton Ingersoll Rand

BEATERS
2—1000 lb. Horne Iron Tub.
1—1200 lb. Holyoke Wood Tub
3—Valley Iron 750 lbs. Iron Tub Beaters, with Silent Link Belt Drive.
2—2000 lb. Valley Iron with wood tubs—like new.
1—1200 lb. Noble and Wood—no tub. Spare new fillings for roll.

BIRD SCREEN PLATE
17 Plate—60 cut. New condition.

BLEACHERS
2—Fletcher high density bleachers—used 3 months.

BLOWERS
1—American ball bearing blower, size 17" x 23" for motor drive.
1—American Blower, size 40. For belt drive.

CALENDER DOCTORS
1 set of 16 Warren Doctors 104" face with frames.
60 Warren Doctors—various sizes.

CALENDER ROLLS
30 rolls various sizes

CALENDER STACKS
1—6 roll Beloit, 110" face.
2—2 roll Holyoke 36" face.
1—9 roll Moore & White—82" face.

CONVERTING EQUIPMENT
4—Sanitary Napkin Machines. With motors and starters.
1—Bliss Double Head Stitcher.
4—Waterville Grinders.

COUCH ROLLS
2—18" diameter x 92" face—brass covered.
3—20" diameter x 92" face—brass covered.

CREPING MACHINE
1—Complete Bagley & Sewall Creping Machine. Dryer 100" face x 48" diameter. Ball bearing equipped. Used 6 months.

CYLINDER MOLDS
3—Impco—84" face—40" diameter with stainless steel face wire
2—110" face x 36" dia.
1—90" face x 36" diameter—with ball bearings and cast iron end vats.
4—84" face x 36" diameter.
4—Cylinder Molds—cast iron end vats—cylinders 120" face x 36" diameter. Ball bearing.

DANDY ROLLS
2—122" face 10" dia.
1—138" face 12" dia.
1—129" face 9½" dia.

DRIVES
1—Falk 25 h.p.—7.5 to 1.—1750 r.p.m.

DRYER DOCTORS
40—Warren Doctors. Various sizes.

DRYERS
38—48" Dia. x 46" Face, Chromium Plated.
2—24" Dia. x 46" Face.
2—36" diameter x 72" face with gears and steam joints.

ELECTRIC HOIST
1—Sprague Electric 3 ton hoist—5 h.p. 3 phase —60 cycle—110 volts.

FLAT SCREENS
1—8 plate Sandy Hill Packer—roller shoes.
1—Sandy Hill 2 plate flat screen.

FOURDRINIER SHAKES
1—Beloit Fourdrinier Shakes.
1—Sandy Hill Bertram Shake. Late type.

FOURDRINJER WET END
1—120" Beloit Fourdrinier Wet End.
1—74" Pusey & Jones Wet End.

GRANITE ROLLS
2—112" face 20" diameter.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped.
1—Jeffrey Swing Hammer size 18"x24"—Type A.
1—Williams 18" Hammermill Ball Bearing.

HOG
1—Mitts & Merrill Hog. Number 5232.

JORDANS
1—Emerson Pony-Belt Drives.
2—E. D. Jones Majestic Jordans, with one new set of fillings for both plugs and shell—belt driven.
2—#2 Miami Jordans—motor drives.
2—E. D. Jones Imperial Jordans—belt driven.

LINE SHAFT
1—Complete line shaft with pulleys and pillar block.

MISCELLANEOUS
2—Nugent Oil Filters (new).

PLATERS
2—Holyoke 2 Roll 18" dia. 36" face.

PULLEYS
60—Cone Split and Solid Cast Iron Pulleys. Various Sizes.

PULP SCREENS
4—Wells Screens.
6—Trimbey Screens.

PULP EQUIPMENT
1—126" face Kamyr Press.
1—84" Sumner Disc Barker with motor.

PULPERS
1—Voith Pulper 20 tons cap.
1—Bird Pulper.

PUMPS
4—Worthington Pumps 10,000 g.p.m.—38' head. Requires 75 h.p. at 350 r.p.m.
1—DeLaval 6" x 6".
1—DeLaval 1800 g.p.m. 30' Head, 500 r.p.m.—8" Suction—10" Discharge, Ball Bearing—Belt Drive—or for Direct Connection to Motor. Open Impeller.
11—Worthington Close Coupled Centrifugal Pumps. 6" x 6" 650 g.p.m. 25' head. 6 h.p. Star Electric splash proof motor. 1750 r.p.m. 440 volt, 3 ph.-60 cycle, ball bearing.
16—Warren Vertical Pumps. 6" suction. 3" discharge. 135 g.p.m. 80' head. Direct Connected 6 h.p. General Electric motor. 1750 r.p.m. 440 volts, 3 ph.-60 cycle, ball bearing.
1—Warren Close Coupled Centrifugal Pump. 3" suction. 2" discharge. 60 g.p.m. 90' head. 6 h.p. General Electric 1750 r.p.m. 440 volts, 3 ph-60 cycle, ball bearing. All the above pumps and motors are in excellent condition and are of bronze construction.
2—Worthington 3". 2 stage, 200 g.p.m. 224' head. Bronze Ball Bearings.
1—Worthington 400 g.p.m. 35' head 1750 r.p.m. Ball bearing.
1—15" Buffalo—4000 g.p.m.—70' head. For direct connection to motor.
2—La Bour Company self priming ball bearing pumps. 2½" suction. 2½" discharge. 130 g.p.m.—30" head with extended base for motor.
1—Domestic Pump ball bearing—250 g.p.m., 4" suction, 3" discharge—30' head with extended base for motor.
1—Mario ball bearing pump—420 g.p.m.—100' head, 4½" suction, 3" discharge. With extended base for motor.
Large stock of Pumps not in above list.

REELS
1—Black-Clawson 2 Bowl—120" face. Takes 50" diameter roll.

REFINERS
1—Weiner Refiner 24" with extended base by direct connection to motor.

ROLLS
40—Table, Dress, Felt, Wire, Breast and Calender Rolls. Various Sizes.

ROTARY COOKER
1—Rotary Cooker—6' dia. x 21' long—complete with drive.

ROTARY SCREENS
2—#2 Bird with copper vats.
2—#1 Bird with steel vats, lead lined.
4—Moore & White.

RUBBER PRESS ROLLS
1—185" Face—26" Diameter } Used 20 Days
1—186" Face—27½" Diameter }
1—119" Face—19½" Diameter.
1—109" Face—17½" Diameter.
1—129" Face—19" Diameter.
1—118" Face—18" Diameter.
1—129" Face—18" Diameter.
1—107" Face—18" Diameter.
1—106" Face—18¼" Diameter.

SAVEALLS
1—A. D. Wood cylinder 48" dia. 60" face.

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years.

SHEETERS
1—60" Beloit Single Knife heavy duty.

SHREDDERS
2—24" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder—on wheels.
1—Ryther and Pringle Shredder.

SLITTERS AND WINDERS
82" Warren two drum—fully rebuilt.
1—41" Waldron Slitter and rewinder. Roll embossing attachment.

STEAM LOCOMOTIVES & WOODLAND EQUIPMENT
1—32 ton 36" gauge Shay-Lima locomotive. Air pressure 150 lbs. P.S.I. with a large lot of new spare parts.
1—40 ton 36" gauge Improved Climax Locomotive. Boiler pressure 150 lbs. P.S.I. with a large lot of new spare parts.
30—36" gauge wood cars. 40,000 lbs. log or pulpwood capacity. Used 4 months.
1—Sheffield motor car, manufactured by Fairbanks Morse—36" gauge—New.

STUFF PUMPS
1—12" x 20" Shartle triplex.
2—4" x 10" Shartle Duplex direct connected to 3 h.p. gear head motors.

TURBINES
1—Westinghouse 125 h.p. 125 steam pressure—15 back pressure. Complete. Used 1 year.

SUCTION BOXES
4—Brass Suction Boxes—110" face—8" wide—adjustable.
1—Brass Suction Box—126" face—8" wide—adjustable.

SUPERCALENDER STACKS
1—7 roll Norwood 72" face; 4 paper and 3 iron rolls. 1 new spare paper roll.
1—7 roll Norwood 52" face; 3 paper and 4 iron rolls. 1 new spare paper roll.
1—9 roll Norwood 83" face. Bottom roll 24" diameter. Top roll 20" diameter.

TURBINES—PAPER MACHINE DRIVE
2—General Electric Turbine Paper Machine Drive 250 h.p.—350 r.p.m. 125 lb. steam pressure 30 lb. back pressure.

UNWINDERS
1—42" John Waldron Unwinder. Used 1 year.

VACUUM PUMPS
3—14" x 20" Connerswille.

WET MACHINES
1—76" Pusey & Jones Cylinder Mould, 76" face —36" diameter with rubber couch. 18" dia.
2—Glens Falls 84" Wet Machines—cylinder mold 48" diameter with 18" rubber couches.
2—Glens Falls 84" Wet Machines—cylinder mold 36" dameter with 18" rubber couches.

YANKEE DRYERS
2—Beloit 8' dia. x 173" face—75# working pressure.
1—Beloit 5' dia. x 194" face—75# working pressure.

THE ABOVE IS A PARTIAL LIST OF EQUIPMENT OFFERED FOR SALE

FOR SALE

FRANK H. DAVIS CO.,
ESTABLISHED 1889

USED AND REBUILT PAPER MACHINERY.

FOR SALE

BARKERS
1—48" Waterville

BEATERS
2—Holyoke 66 x 60, iron tub
1—2000 lb. Horne, iron tub Broke Beater new 1941, roll bandless 60 x 48
1—Horne patent 60 x 60, bronze bars

CALENDER
Set of 124" rolls, bottom 22"; 2-16"; 8-12"

CUTTERS
1—110" Hamblet duplex
1—84" Clark with Moore & White layboy
1—63" Smith & Winchester undercut
1—Taylor Stiles rag cutter
1—Daniels rag cutter

DECKERS
1—39 x 95 Black & Clawson
1—48 x 100 Improved
3—Apmew Filters, mould 50" x 100"

DRYERS
1—6' x 86"; 1—6' x 102"; 1—6' x 106"
2—8' x 175"; 1—5' x 194" new 1939

EMBOSSERS
1—80" Hudson Sharpe Embossing Machine

FANS
2—Buffalo double turbo 6½ Conoidal forced draft fans

JORDANS
2—Union Standard for motor drive
1—N & W Pony Monarch
1—Claflin #2

FOURDRINIER PARTS
1—Rice Barton, wire 100" x 31', rebuilt with 2 Reeves drives
1—Pusey & Jones, wire 133" x 61' 2", running at 500 F P M
1—48"

LOCOMOTIVE
1—Alliance, also 7000 feet of 60 lb. track with connections

MIXER AND COOKER
1—25 gallon cooker #75

PULPERS
2—Jones with Falk reducers and motors 440 volts, 3 phase, 60 cycle
1—Lannoye #2

SCREENS
2—Bird #2
2—Moore & White #2
1—Leith Walk
4—12 plate Packer
2—10 plate Impco flat, bronze vats, new 1940
6—14 plate Impco flat, bronze vats, new
2—6 plate; 1 roller shoe
4—New 10 plate, Witham vats
2—New 8 plate, Witham vats

PUMPS
1—10 x 10 Beloit triplex
2—10 x 12 Deane
1—27 14 x 20 Roots vacuum pump, bronze fitters

SHREDDERS
2—Mitts Merrill #15 C.F. direct cont. to 125 H.P. 440 v. motor
1—Waterville
1—Carthage
1—Ryther & Pringle
Mitts Merrill type 14A P E S #C 19026

SLITTERS
1—150" Moore & White four drum
1—120" Kidder two drum
1—114" Moore & White four drum, wids 60" roll
1—84" Bagley & Sewall
1—50" Cannard
1—26" Kidder two drum

WASHERS
2—2000 lb. Union Mach. steel tubs

Builders of
ASPHALT COATING, COMBINING MACHINE, GUMMING AND CREPING MACHINE, ROLL GRINDER

FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge, Mass.
TF

FOR SALE—Cellophane. Available in small cut size sheets, either moistureproof or plain. Fairly prompt delivery. Address Box 46-603 care Paper Trade Journal. TF

FOR SALE—1 Hamilton-Corliss Variable Speed Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers. any width. The Chesapeake Paperboard Co., Baltimore 30, Md. TF

FOR SALE—One 38" two color Rotogravure Press. Sheet feed and pile delivery. Practically new. Address Box 46-541 care Paper Trade Journal. TF

FOR SALE

REVAMPING AND REBUILDING MILL AND CAN OFFER FOR SALE

1—Noble & Wood Mammoth Jr. Jordan ¼" Filling. Now operating.
1—Brass covered finishing press roll—17¾" diameter x 88½" face.
1—4000# Capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.
1—6" Lawrence Centrifugal Water pump.
2—6" Barnes Centrifugal Sewage Pumps.
5—100" Screen plates for No. 2-A Bird Screen. Slots. .022—never used after being recut once.
1—Rubber covered press roll 12" diameter by 68" face—Journals 5" diameter by 7¼" long.
1—Rubber covered press roll 12" diameter by 84¼" face—Journals 5" diameter by 7¼" long.
1—20" face cast iron tapered pulley—2 15/16" Bore, Taper 31"-29½".
2—20" face cast iron tapered pulley—3 7/16" Bore, Taper 31"-30".
1—24" face cast iron tapered pulley—3 7/16" Bore, Tapered 31⅝"-29⅝".
2—Steel split pulleys 60" diameter by 31" face —5 15/16" bore.
1—Cast iron split pulley—60" diameter by 21" face by 3½" bore.
1—Cast iron split pulley—40½" diameter by 21" face by 3½" bore.
1—Cast iron split pulley—84" diameter by 36" face by 5 15/16" bore.
1—Cast iron split pulley—72" diameter by 18" face by 18" face by 8⅝" bore.
2 —Steel split pulleys—60" diameter by 41" face by 5 15/16" bore.
1—Paper pulley—24" diameter by 21" face by 4½" bore.
1—Tapered cast iron split pulley. Taper 30" to 28½" by 20" face by 3 15/16" bore.
1—30" x 90" Cylinder mould—7" diameter shaft inside cylinder.
1 9½" diameter x 85" Face Rubber-covered squeeze or wringer roll-Journals 1 15/16" diameter.
1—9" diameter x 88" Face Calender roll—5" diameter journals.
12—6½" dia. x 92" face steel drier felt rolls with 1 7/16" x 6½" journals.
2—4" Gould centrifugal stock pumps with 2 vane open impeller. Capacity 600 G.P.M. at 40' head—1175 R.P.M. with 10 H.P. Operated less than two years.
2 —Pair Noble & Wood lighter stands complete with lighter beams and bearings for 8" diameter journal beater roll.

A visit to the mill would prove profitable as we have many items for sale too numerous to mention. See our superintendent, Mr. O. P. Fussell at our plant in Walloomsac, N. Y.

WALLOOMSAC PAPER MILLS, INC.
Mills: Walloomsac, New York
Main Office: 25 Vanderbilt Avenue
New York 17, N. Y. TF

FOR SALE

Barrett - Craven and Lewis - Shephard Lift Trucks, in excellent condition, 3,500# and 5,000# capacities, 7" high in lowered position, 3" and 4" lifts.

EMPIRE BOX CORPORATION
Garfield, New Jersey
TF

FOR SALE—64" Seybold Twentieth Century Cutter, guaranteed to be in good working order. Address Box 46-635 care Paper Trade Journal. S-12

FOR SALE—66" Smith and Winchester Undercut Power Paper Cutter. Rebuilt and guaranteed. Address Box 46-631 care Paper Trade Journal. S-12

FOR SALE

"CALL MOORHEAD
IN PITTSBURGH
REBUILT ELECTRIC EQUIPMENT"

REBUILT ELECTRICAL MACHINERY

Slip ring & Squirrel cage motors

HP	Make	Speed	Voltage	Type
20	G.E.	900	220/440	KT
40	G.E.	870	220/440	MTC
40(2)	G.E.	600	220/440	M T
100	F.M.	1200	220/440	KT
100	West.	1750	2200/220/440	CI
150	West.	600	440/220	Syn.
200	West.	600	220/440	Syn.
200	G.E.	240	2200	MT412
300	G.E.	700	220/440	M
300	West.	1750	2200/220/440	CW
350	G.E.	900	440	I-M
350	Al.Ch.	720	440	S.R.
500	G.E.	450	2200	MT412

AC and DC Generating Equipment

1—300 KW G.E. R. Converter 250 v. DC.
200 KW West. 250 v. DC—2200 v. AC
50 KW G.E. 125 v.—75 HP 3 ph.
15 KW G.E. 250 v. DC—220/440 v.
1000 amp. Westgh. SK Arc Weld Gen.
75 KW 250/275 v. West. Type S 1000.
45 KW West. SK 125 v. 700 RPM.
50 KW Westgh. Turbo 125 Volt D.C.
50 KW Westgh. Engine unit 125 v. D.C.
75 KW G.E. 250 v. dir. con. 4 cyl. Bessemer Diesel Eng.

Miscellaneous

1300 cu. ft. 100#. Worth. Belted, Comp.
220 cu. ft. Ing. Rd.-Gasoline Comp.
270 cu. ft. Chic. Pneu.-Gasoline Comp.
164 cu. ft. Chic. Pneu. Steam Comp.
500/700 HP Morse Chain Drive 4.28 to 1.
250 HP Ottumwa Unit 12.5 to 1
150 HP G.E. unit ratio 3 to 1
150 HP Nuttall 1.6 to 1
2—50 HP Ohio Forge ratio 45 to 1.
2—1 Ton Gib AC Cranes 35' swing.
1½-Ton AC Boom Hoist 220/3/60
5-Ton Shep. AC, 35' 9¼" span, 3 motors.

MOORHEAD-REITMEYER CO., INC.
30th & Brereton Sts. Pittsburgh, Pa.

Specializing in rebuilt Electrical Machinery for over a Quarter of a Century.

FOR SALE

50" wide Cannard surface winder and slitter which has arrangement for removing completed roll and starting new roll at low speed without stopping. Will wind rolls up to 48" diameter. No unwind stand included. Used 2 years. $1000 F.O.B. our plant.

H. P. SMITH PAPER CO.
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68" Rice, Barton, Fales Slitter-Rewinder.
80" and 110" Mill Type Sheeters.
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54" Brown & Carver Power Cutter.
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Robinson Double Corner Cutter.
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Baling Presses—NEW—Hand and Power.

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TARENTUM, PENNSYLVANIA

1—Majestic Jordan #A-235, complete with new filling, 3/16" tackle, No. 6 Fast Jordan Coupling, and following drive:

1 Westinghouse Induction Motor type CS 375 HP 2300 volts 3 phase 60 cycles 97 amp. 380 RPM Ser. #1463196 complete with one control panel, including one Westinghouse 300 amp. Oil Circuit Panel.
1 set Disconnect Switches.

1—Westinghouse DC Motor 75 HP 230 volts 265 amp. 575 RPM Frame 183 Ser. #4778560. Complete with starting control, circuit breaker and motor.

1—Elliott Water Pump, capacity 500 gallons per minute, serial #37075. Direct connected to one G.E. Motor 25 HP D.C. Type CD 85-230 91.3 amps 1750 RPM Ser. #1530365. Complete with one starting control and switch.

1—Westinghouse Generator 70 KW 250 volts DC 280 amp. 375 RPM Ser. #345451 with one Field Rheostat, one two-pole circuit breaker 600 amp., one Westinghouse 500 amp. ameter and shunt. This Generator driven by Buckeye Steam Engine, 100 lbs. steam pressure engine #5156.

1—2000 KW A.C. Turbine Generator complete with all accessories.

1—Allis-Chalmers Induction motor 250 HP 870 RPM 2200 volts, 3 ph 60 cy 59 amp. Serial #2K13566.1.

1—G.E. Induction Motor type KT 326-6-25-1200 Form B 3 ph 60 cy 220 volts 25 HP 61 amp. 1200 RPM Ser. #1053934 complete with one G.E. Oil Switch type F Form K20 80 amp 600 v Ser. #368400.

1—G.E. Starting Compensator CR1034 220 volts 3 ph 60 cy type NR 1622.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 v. 3 ph 60 cy 36 amp Ser. #1180132.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 v. 3 ph 60 cy 36 amp.

1—Westinghouse 30 HP D.C. Motor 220 volts 117 amp. 975 RPM Ser. #233501.

1—G.E. Motor DC Type MP Form H 20 HP 1025 RPM 220 volts 70 amp. Ser. #19880, complete with manual starting equipment.

1—104" Sheet Cutter complete with stands for 10 rolls, and layboy.

1—G.E. Motor DC Type RC30 Form A 15 HP 850 RPM 230 volts 53.5 amp. Ser. #937750, complete with variable speed control for armature and field.

1—G.E. Motor DC 7.5 HP 230 volts 30.2 amp 850 RPM Type RC-29A Form A29 Ser. #1145541.

1—G.E. Motor DC 10 HP 230 volts 375.1 amp 850 RPM Type RC 29 Form A29 Ser. #1148660.

1—Westinghouse DC Motor Type S 5 HP 220 volts 21 amp. 1300 RPM Ser. #112692.

1—G.E. Motor DC 35 HP 129 amp. 230 volts 700 RPM DLC 202 Form A Compound Ser. #434542, complete with starting control.

1—G.E. Induction Motor (slipring) Type IE 13AA-4-150-1800 FORM M 3 ph 60 cy 2200 volts 150 HP 34.5 amp 1745 RPM Ser. #3884576 complete with panel. One G.E. Switch Panel type ATI 59008, one Drum Controller and Resistance variable speed.

1—Master Electric Worthington Pump and Motor. Pump is good for 100 gal. per minute 5 HP Motor 230 volts DC 3425 RPM Ser. #CC-3495.

1—Robbins & Myers Hoist ½ HP 230 volts DC 400 RPM Ser. M71309KH.

1—Master Electric Gear Head Motor 1 HP 230 volts DC 1725 RPM Ser. CE863.

1—Shepard Liftabout Electric Hoist 2,000 lb. capacity 230 volts DC Serial #11339.

1—Wright Electric Hoist 1,000 lb. capacity 230 volts DC 1200 RPM Ser. #27668.

3—ILG Ventilating Fans ¼ HP 230 volts DC 855 RPM.

2—G.E. CP27 Compressor Head Air Pumps 230 volts DC Complete with pressure line switches.

1—Allis-Chalmers DC Motor 5 HP 220 volts 1050 RPM Ser. 44037.

1—Westinghouse DC Motor 10 HP 40 amp. 230 volts 1725 RPM Frame 60L Ser. #143833.

1—Daniels Rag Cutter #2.

1—Horizontal Rotary Digester 7' dia., 22' long with gearing reduction.

1—Horizontal Rotary Digester 8' dia., 20' long with gearing reduction.

1—Bucket type conveyor elevator. Buckets size 5" x 17", approximately 48' long, lifts on incline approx. 15'. All steel construction with Rex Chain Drive, complete with one Foote Bros. gear reducer type 25W 43 to 1 ratio, ser. 188052, driven by one G.E. DC Motor type RC27A Form A-38 5 HP 19.1 amp 230 volts 1150 RPM.

1—R40 Reducer, 12 to 1 ratio.

1—Slipring motor 75/150 HP Type CW 3 ph 60 cy 2200 volts 290/580 RPM Ser. #2224679, complete with starting equipment.

1—Slat conveyor steel construction 4' wide, 3' high, 42' long, driven by one Jones Spur Gear Reducer, ratio 27 to 1, Ser. #10135. Driven by one Sprag Electric DC Motor type LC 10 HP 37.2 amps 230 V 100 RPM Ser. #DL 2005213, complete with sheaves and V Belt drive, one Westinghouse Automatic Starter.

1—John Waldron Embosser #711.

1—Thorpe Hydraulic Press complete with 4 steam platen plates 40" x 40", and one Equalizer Pump.

1—Five cylinder Holyoke Duster.

1—Two-color Kidder Rotary Press, with various plates and printing rolls.

3—Beaters, 1000 lb., cast iron tub, complete with roll.

2—Beaters, high speed, 2000 lb., cast iron tub, complete with roll.

1—Banded type Emerson Beater Roll, 54" face, 56" diameter, complete with stands.

MISC.

Platform Scales.
Paper Testing Equipment.
Two-wheeled hand trucks.
One Shartle Bros. Duplex Stock Pump 8 x 16.

TF

1—30" late type Model "B" Fales Slitter & Rewinder with knife setup to cut ¼" widths.

1—30" Late type Model D Fales Slitter and Rewinder equipptd with knife setups to cut following widths: ¼, 9/32, 5/16, 11/32, ⅜, 13/32, 7/16 and ½ inches.

1—68" Type 40B Hudson Sharp Toilet Paper Converter. Perforates 5" lengths toilet or 10" paper towels.

1—64" Creping Machine. Creping roll 12" in diameter with doctor blade. Two dryers 36"x64" and rewind.

6—S.O.S. Grocery Bag Machines making 1 lb., 2 lbs., 3 lbs., & 10 lb. each, and one making 7 & 8 lb. bags.

1—60" Hammersley Score Cut Slitter with 10 cutting knives and 2 collapsible shafts.

1—84" 3 shaft Model 30B Hudson Sharp Toilet Paper Perforator cutting sheets 4½ x 5, 4½ x 4½, 11 x 15, 11 x 13½, 11 x 7½ inches. Known as a hard wound roll machine.

1—Noble & Wood 100 lb. Experimental Beater.

4—Complete spiral tube winders with automatic cut-offs, also recutter. 2 Langston and 2 Knowlton manufacture.

1—84" #9E Hudson Sharp Unit Embossing Section for use with toilet paper converter. Complete with 2 steel engraved rolls, "basket weave" and "ribbon" patterns.

GIBBS-BROWER COMPANY, INC.
21 East 40th St., New York 16, N. Y.
TF

FOR SALE

New brass covered felt or wire rolls 6½" dia., 84 to 120" face. These are made from government surplus and are new in all respects.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

FOR SALE

Two Miami Centraps
Priced for quick sale.

These machines designed for removing dirt from fine papers. Box No. 46-636 care Paper Trade Journal. S-12

FOR SALE

BREAKER BEATER

1—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity.
Equipped with Shartle Bros. Ragger.

1—Valley Iron Beater — New Perforated Back Fall — Beater roll 48" face x 54" diameter. (Newly Filled)—No tub.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark 5, N. J.
Tel. Bigelow 3-3720 S-12

FOR SALE—One Manual Control Direct Feed Ammonia Apparatus Type M.D.P.A. Capacity 100 lbs. 24 hours. Price $300.00 FOB mill. Used, but in good condition. Address Box 46-630 care Paper Trade Journal. S-26

NEW EQUIPMENT FOR SALE

All War Surplus Material in Perfect Condition

40—2 Ton Wright Chain Falls with 20 Ft. Chain.
10—3 Ton Wright Chain Falls with 20 Ft. Chain.
The above were never out of original boxes.
11—12,000 GPM Gould All Bronze Centrifugal Pumps.
20—350 GPM, 60 Ft. head Gould All Bronze Centrifugal Pumps.
6—2000 GPM, 150 Ft. head Gould All Bronze Centrifugal Pumps.
1—Gould Triplex Boiler Feed Water Pump 5" x 8".
Above pumps Navy Surplus, never used!
500'—Aluminum Tubing, 4" Dia.
1200'—Phosphorus Bronze Extra Heavy Tubing, 3¼" Dia.
Will make Fourdrinier Table Rolls any length!
500'—Copper & Brass Tubing 6⅝" Dia.
300'—Copper & Brass Tubing 8¾" Dia.
Will make felt and wire rolls with steel pipe core, any length up to 20 ft.!

OSBORNE PAPER MILL EQUIPMENT CO.
FULTON, NEW YORK
S-12

PAPER COATING MACHINERY — Waxing, Oiling, Gumming, Gluing, Carbon, Laboratory Coating and Treating Machines. High speed. New improvement. MAYER MACHINE COMPANY, Inc., 1154 Scottsville Road, Rochester, 11, N. Y. TF

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WANTED—Large lots of paper folding boxes —styles—Staude Glued—No Lox Simplex— etc. Send samples—information and best price. Address Box 46-615 care Paper Trade Journal. S-12

WANTED

"We Urgently Need Immediately for Export 5000 Tons or More of Newsprint Paper in Rolls or Sheets. Wire or Write Offer to Box No. 46-607 care Paper Trade Journal. S-19

WANTED

Bag Converter requires monthly 50 tons 70 to 80 lb. Kraft Paper 48" to 85" widths—22" diameter. Bonus or profit sharing arrangement. Box 46-609 care Paper Trade Journal. S-12

WANTED—Three or four color rotary press for printing paper bags; and one half barrel bottomer. Must be in good condition. Give full details. Address Box 46-587 care Paper Trade Journal. TF

WANTED—Straight pass enclosed drier to handle paper coating process. Also paper coating equipment. The Process Manufacturing Company 1313 West Randolph Street, Chicago, 7, Illinois TF

WANTED—Brightwood Box Machine. Address Box 46-33 care Paper Trade Journal. TF

WANTED — W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses. Sheridan Presses. Dryers. Address Box 46-32 care Paper Trade Journal. TF

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

WANTED—Special lots, side-runs or over-runs Printing papers, or Wrapping papers — Bond, Kraft, Tissue, Board, Index, Offset, etc. Send samples, sizes and prices. Address Box 46-611 care Paper Trade Journal. S-26

WANTED—One complete Wet-end, 60" to 70" wide with 4 or 5 Cylinder Moulds or Vats. First and second Press rolls and all necessary stands. York Paper Mfg. Co., P. O. Box 189, York, Pa. S-19

WANTED

WANTED

One or two wet machines. Width from 72" up. Either single press or Rogers. Box No. 46-633 care Paper Trade Journal. S-19

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CONTRACT WORK—We have bag machine and no paper. If you have paper we'll do the job of making bags for you economically and efficiently. Address Box 46-629 care Paper Trade Journal. S-12

TAPPI NUMBER

of

PAPER TRADE JOURNAL

will be

OCTOBER 10, 1946

MILL & MILL EQUIPMENT NUMBER

will be

DECEMBER 5, 1946

GOVERNMENT BIDS

PROPOSALS

FOR FURNISHING

PAPER FOR THE U. S. GOVERNMENT PRINTING OFFICE

SEALED PROPOSALS will be received until 10 a.m., September 16, 1946, in the room of the Joint Committee on Printing, in the Capitol, Washington, D. C., for furnishing the paper for the public printing and binding, and blank paper for the use of the Government departments and establishments in the District of Columbia, for the term of three months, beginning October 1, 1946; deliveries to be f. o. b. Government Printing Office Warehouse, or warehouse siding, Washington, D. C. The proposals will be opened in the presence of and the award of contracts made by the Joint Committee on Printing to the lowest and best bidders for the interest of the Government whose bids are in conformity with the requirements of the proposal. The Committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part, if, in its opinion, such action would be in the interest of the Government.

Blank proposals containing the instructions, schedules, and specifications may be obtained by addressing A. E. Giegengack, Public Printer, Washington 25, D. C.

Contracts will be entered into for supplying the quantities required, whether more or less than the estimates, as provided in paragraph 15 of the instructions.

The approximate estimated quantities set forth in detail in the schedule comprise:

PAPER

800,000 pounds newsprint paper; 3,780,000 pounds machine-finish book paper; 200,000 pounds English-finish book paper; 2,000,000 pounds offset book paper; 50,000 pounds antique book paper; 50,000 pounds 50% lightweight machine-finish book paper; 130,000 pounds 50% antique book paper; 1,150,000 pounds supercalendered book paper; 600,000 pounds coated book paper; 1,550,000 pounds mimeograph paper; 600,000 pounds duplicator copy paper; 250,000 pounds U S M O safety writing paper; 13,550,000 pounds writing paper; 250,000 pounds map paper; 340,000 pounds manifold paper; 3,040,000 pounds bond paper; 1,555,000 pounds ledger paper; 1,820,000 pounds index paper; 250,000 pounds cover paper; 200,000 pounds manila paper; 150,000 pounds kraft paper; 50,000 sheets white gummed paper; 100,000 pounds desk blotting paper; 140,000 pounds tag board; 5,000 sheets railroad board; 240,000 pounds wood cardboard; 40,000 pounds chemical wood tan board; 8,500,000 pounds postal card paper; 30,000 sheets pressboard; 140,000 pounds binder's board; 100,000 pounds chestnut coverboard.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

By direction of the Joint Committee on Printing.

A. E. GIEGENGACK,
Public Printer.

WASHINGTON, D. C.,
September 3, 1946. S-12

SCREENS of Perforated Metal

The Harrington & King PERFORATING Co.

5652 Fillmore St., Chicago 44, Ill. 114 Liberty St., New York 6, N. Y.

Appleton Wires are Good wires

APPLETON WIRE WORKS, INC. APPLETON, WIS.

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Paper Machine Screens
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Dusters of all Kinds
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A COMPLETE LINE OF TYCOL LUBRICANTS SCIENTIFICALLY ENGINEERED FOR EVERY INDUSTRIAL USE

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CAMACHINE 18

Operates smoothly at speeds up to 2000 FPM on paper 1200 FPM on board handles widths from 73" to 162"

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Langston

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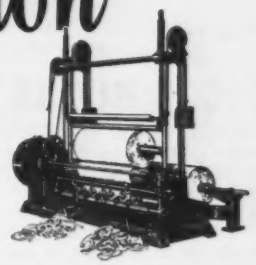
are accurately machined and balanced for high-speed operation. You get "custom tailored" finished rolls.



SAMUEL M. LANGSTON COMPANY, CAMDEN, NEW JERSEY

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Roehlen Engraving Works, Inc.

324 St. Paul St., Rochester 5, N. Y.

Mfrs. of Engraved Embossing Rollers and Plates of Any Type and Description
Worn Rollers Re-Engraved.

Complete Designing and Engineering Service

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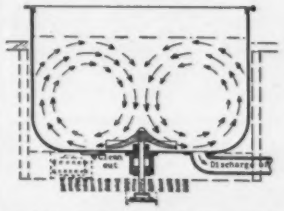

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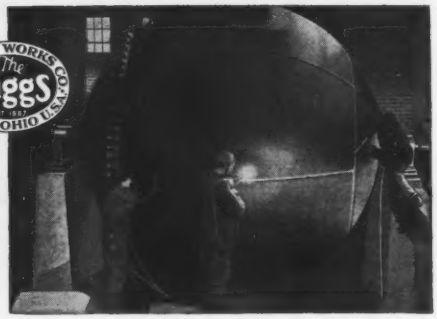

Fig. 45 — Biggs 14 ft. dia. welded rotary digester with worm-and-segment drive.

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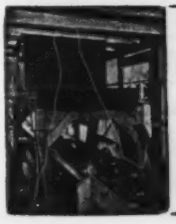

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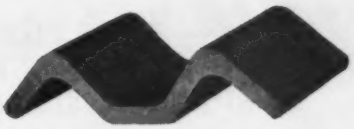

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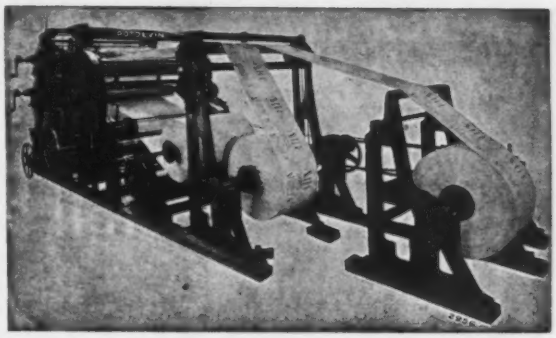

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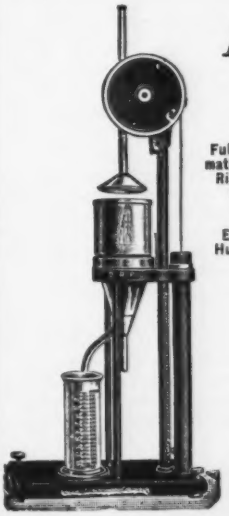

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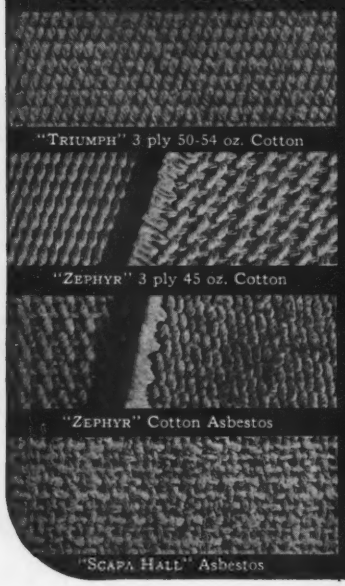

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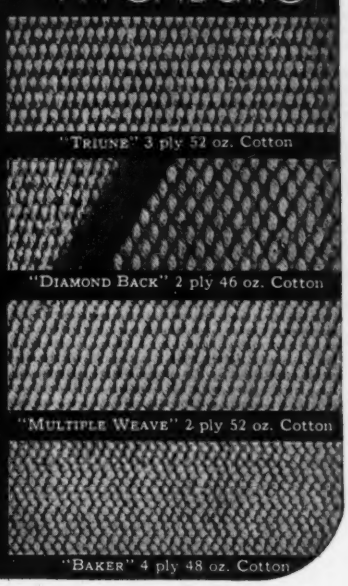

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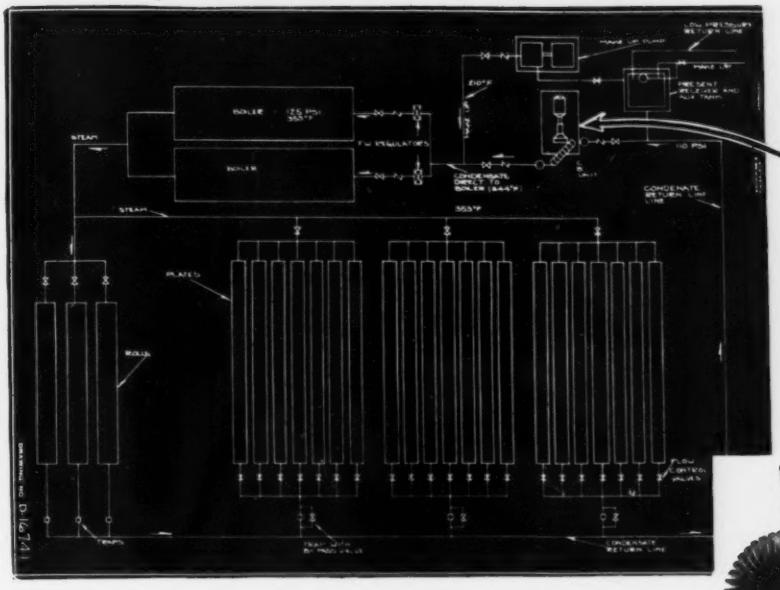

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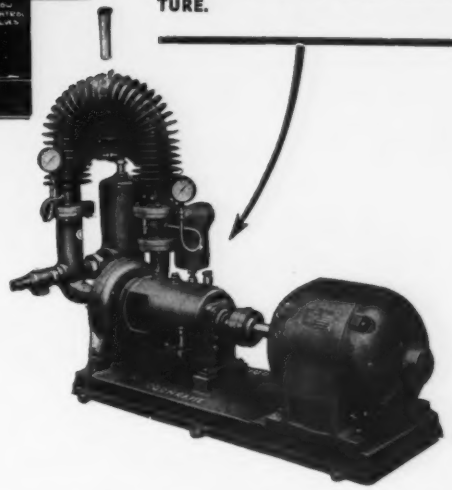

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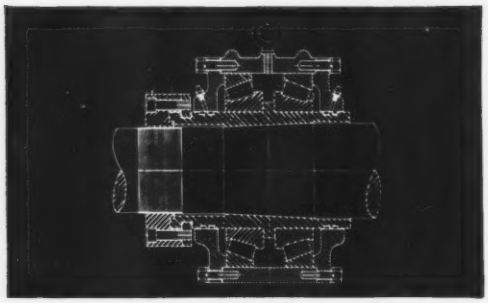
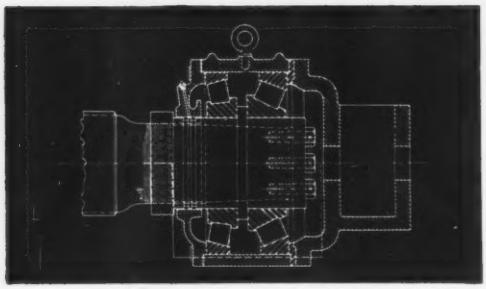


Timken Bearing application as used at the radial end of the plug shaft.



Timken Bearing application as used at the thrust end of the plug shaft.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

Bearings have two major responsibilities in jordan engines; they are (1) holding the plug in accurate alignment and keeping it permanently centered in the shell; (2) carrying the severe thrust load developed.

Because Timken Tapered Roller Bearings provide proper support for the plug and protect it against radial, thrust and combined loads, at the same time relieving the plug shaft from friction and wear, they are eminently suited to jordan engine service.

The Emerson Manufacturing Company, Lawrence, Massachusetts, has equipped its jordan engines with Timken Bearings for years with complete and constant satisfaction. It will pay you to have them in your jordans—but make sure the trade-mark "TIMKEN" appears on every bearing you use. The Timken Roller Bearing Company, Canton 6, Ohio.